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DESIGN PROBLEM

Developers of Malibu Canyon Business Park wanted to hide roof mounted equipment (i.e. air conditioning, skylights and vent units) to improve the aesthetics of the building in the business park. The objective was to avoid street and highway traffic from viewing the unsightly roof mounted equipment. In addition, they wanted to achieve greater building marketability by allowing the screen to support tenant marquee and logo banners.

DESIGN SOLUTION

The project utilized Unistrut® Metal Framing System and a metal panel approximately 4’0” high to form a visual screen approximately 3 feet from the outer edge of the roofing/parapet wall. Attachment to the roof was through pitch pocket built up with 4 x 4 members, with a lag screw through Unistrut members. This was completed prior to flashing and hot-mopping by the roofing contractor. The corners were placed at 45° to wall and parapet, to add depth and dimension. The project used 1 5/8” series channel and fittings, which were painted on the job site before installation. A gate was installed through each wall utilizing Unistrut hinge fittings and diagonal bracing. For details, refer to the drawing on the reverse side of this page.

Courtesy of UNISTRUT LOS ANGELES
DESIGN PROBLEM

Mr. Coleman, Project Engineer for Curraugh Mine in Australia was interested in improving storage facilities for the miner’s clothes. Designing a locker storage system that eliminated odor from wet overalls and left over food, which is a problem in conventional lockers, became a challenge for Unistrut Australia.

DESIGN CRITERIA

- Optimum utilization of room space
- Proper airflow for natural drying of wet clothes
- Security of storage units for belongings of individual personnel
- Unobstructed changing area for workers

DESIGN SOLUTION

The metal framing ceiling grid, supported from I-beams are used for suspending baskets, which provide a flexible use of floor space. Baskets, suspended from a nylon sheave are hoisted into the air and secured utilizing a bicycle type of padlock. The suspended locker system created proper airflow through the storage lockers while utilizing optimum room space. A combination of Unistrut channel and brackets were also used for providing supports for benches in the locker room.

Courtesy of UNISTRUT AUSTRALIA
PIPE BRIDGE

DESIGN PROBLEM

The Airco Industrial Gas Corporation had acquired a new warehouse approximately 120 feet from their existing helium station. Both buildings’ facia were being retrofitted to showcase the company’s new progressive image. The owners needed to run an aerial gas pipeline joining the two buildings without obstructing the heavy delivery traffic which occurs at the gate. The objective of the design was to erect the aerial gas pipeline and to create a ‘high-tech’ architectural appearance to blend with the retrofitted facia of the two buildings.

DESIGN CRITERIA

- Provide a structural ‘bridge’ capable of supporting design loads, with sufficient span lengths allowing a free form of ground traffic
- Create a ‘high-tech’ architectural appearance that blends with the retrofitted facia of the two buildings
- Allow for elevation changes between the two buildings
- Utilize the customers color specification
- Keep the project on budget

DESIGN SOLUTION

This project employed the Unistrut® Space-Frame System I in a standard 4 foot module size. Through the use of an additional diagonal brace in the plane of the module, and by doubling the columns at support points, the system was able to span the required distances with a single module ‘bridge’. Identical color matches of the frame to the customer trademark color was accommodated. The frame was assembled in a small area of the parking lot and raised in sections with a small crane. The actual lift time was less than four hours, thus minimizing down time for the delivery vehicles.

Courtesy of UNISTRUT NORTHERN CALIFORNIA
TELESPAR® CEILING GRID

DESIGN PROBLEM

Designers of the Milwaukee Repertory Theatre needed a structural ceiling grid that would support stage curtains, lights, props, audio equipment and stage scenery. The ceiling system developed for the theatre had to be structurally sound and flexible enough to meet the changing demands placed upon it, yet light weight enough to be integrated into the existing structure. Another obstacle to overcome was that the ceiling grid structure had to accommodate new and existing theatre construction.

DESIGN CRITERIA

• Must be structurally sound and in the same plane
• Allow for vertical and horizontal attachments
• Maintain a clear height of 18’-0” from the bottom of the ceiling grid to the finished floor
• Cover stage area to accommodate the changing needs of the theatrical arena
• Material must be painted after installation

DESIGN SOLUTION

The project utilized a Telespar® ceiling grid with 4’ x 4’ and 4’ x 8’ modules. The tubing was cut to the engineered module size and a 3/8” thick plate with adjustable slotted holes welded to the tube to facilitate a thru-bolt connection. This plate allowed the threaded rod to pass through the center of the junction for maximum strength and adjustment. The rod drops were hung from the ceiling utilizing Unistrut® P-1001 members, P-1386 beam clamps, and in some areas the grid required P-1737 fittings and a Kwik™ bolt to the concrete.

Courtesy of UNISTRUT WISCONSIN
GOLF BAG RACKS

DESIGN PROBLEM

Golf Pro’s at their respective golf courses needed to develop an efficient system to sort patron’s golf bags. A major drawback was the clubhouses have limited floor space and the pro’s specified a rack system that would optimally utilize the available space both vertically and horizontally. In addition to the demand for a flexible rack system, the material chosen would have to adapt to any space changes that would occur over the lifetime of the building.

DESIGN CRITERIA

- Optimum utilization of floor space for maximum storage capacity
- Vertical golf bag storage for proper ventilation to prevent mildew, scratching and tearing
- Provide a neat and orderly storage system for easy accessibility by patrons
- Material adaptability for building changes and expansion

DESIGN SOLUTION

The project utilized a Unistrut® storage rack system with standard 1 5/8” channel and fittings. Double tiering the rack system provided the pro’s with optimum utilization of their horizontal and vertical storage space. Horizontal dividing bars separating the golf bags provided for easy accessibility by the patron’s while reducing the risk of scratching or tearing of the golf bag. Extended horizontal divider bars allowed for couples to store their bags in one unit. The racks developed with standard 1 5/8” channel and fittings provide maximum flexibility for clubhouse expansion. This ‘vintage rack’ solution was developed in 1960 and is still prevalent today.

Courtesy of Unistrut Marketing (©10/87)
AXENT™ DISPLAY- PAN AMERICAN LOGO

DESIGN PROBLEM

The Pan American Committee (PAX/1) wanted to create a display which would depict the logo designed specifically for the games held on the campus stadium of Indiana/Purdue University in Indianapolis. This logo design- a series of five Roman numeral ten crosses- was used to symbolize the tenth year of this prestigious athletic event. Committee members required that the design developed must be installed within a two-week time parameter. In addition, each of the five crosses of the logo were to carry individual colors of blue, purple, red, orange, and yellow symbolizing the colors of the Pan American Games.

DESIGN CRITERIA

• Duplicate the unique Pan American logo design
• Create a structure that would become a visual locator for the main running track and Athletic Village
• Emulate the five individual colors used in the logo design
• Meet the project installation timetable

DESIGN SOLUTION

The project utilized the Axent™ Display system in a 34” cubic design to form five consecutive crosses joined together at two points using standard coupling bolts. The individual crosses stand 17’ high x 25’6” wide x 34” deep and were painted in standard colors of blue, purple, red, orange, and yellow. The frame was assembled in the field and lifted into position by local Ball State University students.

Courtesy of UNISTRUT INDIANA
UNISTRUT® CEILING GRID-WAREHOUSE

DESIGN PROBLEM
The owners of the Cherokee International Corporation were taking occupancy in a new facility. The facility’s roof structure was 30’ above the ground, however the owners needed to adjust the ceiling structure in order to accommodate the suspension of their HVAC, lighting and piping system at a 12’ height above the ground. The ceiling system, designed over the manufacturing area, would also facilitate as a framework for the attachment of various manufacturing tools that the employees used daily.

DESIGN CRITERIA
- Maintain constant elevations of the ceiling over changing roof slope
- Design load to provide support for HVAC, lighting, piping and manufacturing tools
- Design a versatile system for future lighting and utilities modifications
- Maintain seismic zone requirements

DESIGN SOLUTION
The project utilized a Unistrut® ceiling grid with 8’ x 8’ square modules and suspended from 1/2” threaded rods which were attached to an existing wood roof joist standing 30’ from ground level. The Unistrut ceiling grid covered a 20,000 square foot area at a 12’ height from the floor and utilized the P-1001 channel in the standard green finish.

Courtesy of UNISTRUT LOS ANGELES
DESIGN PROBLEM

Con-Rail Corporation needed to design a temporary platform to install over inactive railroad tracks while repairs were being made to the track. The platform had to be assembled and disassembled easily, while accommodating the need to section the passenger platform over the inactive track to ensure safe passenger boarding on the adjacent track.

DESIGN CRITERIA

- Maintain constant platform elevation between the existing platform and the demountable platform
- Quick assembly and disassembly of the demountable platform
- Platform design must be lightweight enough to be handled by a two-man crew
- Maintain passenger platform safety standards.

DESIGN SOLUTION

The project design utilized the perforated Telespar® tube in 2” and 2-1/4” sizes to solve the demountable platform requirement. Vertical adjustments are made at the bottom ends of the posts and at the connections of the handrail utilizing the telescopic feature. The connections were flared out using a die similar to a drive cap with a tapered end. Gravity pins (part #301105) were used to complete the installation of the tube connection. Plywood decking was applied and painted with no skid deck paint.

Courtesy of UNISTRUT EASTERN
UNISTRUT® CEILING GRID-CONVENTION CENTER

DESIGN PROBLEM
The owners of the Palm Springs Convention Center needed to create a ceiling framework that would be used for supporting pipes in addition to attaching light and banners for convention center participants. The ceiling system design needed to be versatile enough to accommodate the convention center participants while aesthetically blending into the existing roof structure.

DESIGN CRITERIA
- Maintain constant elevations of the ceiling over a changing roof slope
- Design load support for lighting, piping and convention center banners
- Design a versatile system for future lighting and utilities modifications
- Maintain seismic zone requirements

DESIGN SOLUTION
The Project design included 35 Unistrut® ceiling grids suspended from 1/2” threaded rods. Each 20’ x 20’ grid was composed from full lengths of P-1000 channel spaced four foot on center. The grids were suspended at a height 30’ above the ground and attached to the existing ceiling structure which was 42’ above the ground. The aesthetic design criteria was met by painting the frame black prior to the installation.

Courtesy of UNISTRUT LOS ANGELES
DESIGN PROBLEM

The Chicago architectural firm of Bertrand & Goldberg decided to create a new interior design to their office space. They required that the design incorporate uninterrupted floor space to accommodate the locating and relocating of drawing files and other room accessories. Additionally, storage shelving with adjustable station lighting needed to be an intricate part of the room design.

DESIGN CRITERIA

- Support all shelving for the architectural drafting area from the ceiling
- Provide adjustable individual station lighting that could be incorporated into the shelving design
- Create an open office environment within the drafting area.
- Create strong horizontal lines within the interior office design

DESIGN SOLUTION

The project employed the Unistrut ® P3301 channel, which was suspended 12’3 3/8” from the ceiling. The channel served as an electrical raceway for easy accessibility to lighting fixtures. Each level of shelving was made from 3” thick laminated particle board and was designed progressively larger to accommodate maximum storage space. All Unistrut channel members were custom painted black to maintain the integrity of the office design.

Courtesy of UNISTRUT ILLINOIS
TELESPAR® CEILING GRID- ARCHITECTURAL OFFICE

DESIGN PROBLEM
The architectural firm of Cox, James and Associates wanted to create a unique by functional ceiling grid for the "working area" of their new offices. The grid needed to be aesthetically pleasing but still function practically as a support for lighting over the work stations. Additionally, it would be utilized to display various light fixtures and ceiling panels.

DESIGN CRITERIA
- Clean, simple splices and connections
- Minimal use of supports
- Removable cross-members to accommodate a variety of light fixtures and ceiling panels
- Easy attachment of work station lighting

DESIGN SOLUTION
The ceiling grid design utilized the 2" Telespar tube and a 4’ grid pattern. Internal splices in the continuous lengths were made only at cross-points and used 1 3/4” Telespar tube. All connections and splices were made with pan-head bolts with the washers and nuts on top of the grid to be less noticeable. Unirod drops were used on 8’ centers and joined to the pan-head bolts with coupler nuts. The intermediate members are easily panels, and the Telespar grid was painted to match the interior panels of the individual work stations.

Courtesy of UNISTRUT ARIZONA
NOTES:
1–GRID 4’2" O.C.
4’0" CLR.
2–HANGERS 8’4" O.C.

TELESPAR CEILING GRID

CORNER DETAIL

"T" DETAIL

SPlice DETAIL

HANGER DETAIL

16P12 7-
SPlice TUBE

20P12

THREADED INSERT

3/8" THREADED ROD

3/8" COUPLING NUT

3/8"x4" PAN HEAD CAP

SCREW W/ HEX NUT & FLAT WASHER
A unique design for chandelier lighting was a design problem for the architectural offices of Bertrand & Goldberg. The newly created office space needed to stay within the design requirements of strong horizontal and vertical lines, while accentuating focal areas of the room design.

**DESIGN CRITERIA**

- Provide area lighting that accentuated the focal areas of the room design
- Provide for wire raceway through the members of the chandelier fixture
- Create strong horizontal and vertical lines within the interior office design

**DESIGN SOLUTION**

The project utilized Unistrut P1000 and P1001 to form two unique chandelier designs: one circular and one rectangular. Channel members in the chandeliers easily accommodated the wire raceway criteria. The circular chandelier arm spokes were welded together forming 30° angles at the hub using a 3/16” x 6” round plate. The rectangular chandelier utilized standard fittings of P1346 and P1068 to create the 90° angles. Both chandelier designs were painted black to draw attention to the focal areas of the room.
UNISTRUT RECTANGULAR CHANDELIER

8' - 6"

6" x 3/16" ROUND PLATE WELDED TO CHANNEL

UNISTRUT CIRCULAR CHANDELIER

PLAN VIEW

SECTION 1-1

EXPLODED VIEW
DESIGN PROBLEM

Designers of Institutional Services wanted to create a “Celebration of Texas History” display for the State Fair of Texas. The art gallery display design was to be installed in the Hall of State, which has high ceilings and limited lighting. A major design requirement was that no lighting could be hung from the existing ceiling, wall supported or supported from the floor. Thus, all lighting needed to be supported from the display panels. Due to the art gallery appearance of the display, a ‘clean modern look’ was to be incorporated into the design without overpowering the display.

DESIGN CRITERIA

- Design a rigid lightweight grid system that allows attachment of small light tracks while concealing the electrical wires.
- Create a grid that would be supported by the display panels.
- Create a ‘clean modern look’ that complemented the exhibit and illuminated an intimate gallery atmosphere

DESIGN SOLUTION

The project utilized a Unistrut® Aluminum Lighting Grid. The framing system consisted of P1001 EA channel with fittings, spring nuts and bolts. Channel legs made of P1001 were screwed to the tops of the display which supported the grid system. Lighting fixtures were attached at strategic areas illuminating the exhibit, while the channel was used as a raceway to conceal the electrical wires. This system was dismantled after the fair closed and is now being used at another exhibit location.
TRUSS SYSTEM & MEZZANINE

DESIGN PROBLEM

The owners of Superior Coffee Company took occupancy of a new warehouse facility. The warehouse utilized the majority of their floor area for storage of fresh coffee products and a service area for used machines. As a result, little space remained for parts and accessory storage, or accommodating new inventory. A framing system was needed to increase storage capability. The system created must be maintained by minimum column supports and needed to incorporate overhead framework to provide suspended shelving.

DESIGN CRITERIA

- Create a multi-level storage space
- Develop maximum flexibility of ground level storage area
- Design a system with minimum column support
- Provide a framing system that supports overhead parts & accessory storage, and suspended shelving storage

DESIGN SOLUTION

The project utilized nine 10’ Unistrut® trusses, fabricated form P1000 channel in the standard green finish. Spaced 24” on center, the nine trusses provide ample support for overhead storage loads and the suspension of hanging shelves to service the ground level. Additionally, 20’ P1000 channel sections were used as cross members to provide lateral support between columns. Wood decking placed on top of the trusses completes the Unistrut mezzanine.

Courtesy of UNISTRUT NORTHERN
SECURITY WALLS

DESIGN PROBLEM

The Oklahoma County Detention Center wanted to create a 'safe' walkway security wall system on the mezzanine level of the institution. The design required that the enclosure should not obstruct the view by the detention center security. Additionally, the type of system designed must prevent inmate tampering.

DESIGN CRITERIA

- Create a 'safe' walkway system
- Design must accommodate a clear view
- The system must be durable and self contained
- Install a system that enables easy replacement of broken panels
- Design must prevent inmate tampering and the installation will not allow welded parts

DESIGN SOLUTION

The system developed and installed utilized a Unistrut® P1000 frame which attached to an existing handrail and ceiling. A clear Lexan panel 3/8” thick was attached to Unistrut frame utilizing tamper proof bolts. The Lexan panel was overlapped by 3” on the handrail to prevent inmate tampering with Unistrut nuts and fittings. The P1000 frame was painted white brighter visibility.

Courtesy of UNISTRUT OKLAHOMA
SUPER HEAVY DUTY ACCESS FLOOR

DESIGN PROBLEM

Tinker Air Force Base had an existing computer room floor which they had designated to place heavier than normal computer equipment and materials upon. They required that the existing floor be maintained or enhanced to allow for a floor load of 3500 lbs. per 2’ X 2’ panel.

DESIGN CRITERIA

• Utilize existing raised floor
• Design load to accommodate 3500lbs. per 2’ X 2’ floor panel
• Create a 6’ wide walkway of the reinforced floor panels
• Differentiate the floor coloring to designate the reinforced panels

DESIGN SOLUTION

The project utilized the Unistrut® P1000 channel in a cross grid pattern. This gave additional support of 3500 lbs. per 2’ X 2’ floor panel. A Unistrut nut (P1024) inserted into the channel, with a 3/4” rod connected the Unistrut grid to the floor jacks. The existing floor panels were put back into place and arranged by color to designate the 6’ wide reinforced walkways.

Courtesy of UNISTRUT OKLAHOMA
SUPER HEAVY DUTY ACCESS FLOOR
Horizon – 88-011

35660 Clinton Street
Wayne, Michigan 48184
CEILING & WALL SUPPORT
MACKEY ARENA, PURDUE UNIVERSITY

DESIGN PROBLEM
The design firm of Rowland & Assoc., and the Purdue University design staff wanted to create a new basketball team conference room. The area available for this project was located under the concrete bleachers of the arena, thus, existing duct work and pipes coupled with a stairstep ceiling became a design challenge. The design team wanted to create a single framing support that would facilitate lighting fixtures, raceway wiring and shelving storage. Additionally, the framing system utilized would become a focal point of the room in both form & function.

DESIGN CRITERIA
- Develop a framing support that connects to the existing stairstep roof structure
- Create a ceiling grid that supports lighting fixtures and act as a raceway for wiring
- Install shelving framework and have the unit integral to the ceiling grid
- Design must be aesthetically pleasing in form & function

DESIGN SOLUTION
The project was ideal for Unistrut® P1000 channel, with ceiling grid members 18” on center. A series of 1/2" rod drops were used to suspend the framework 8’6” from the floor. The channel served to support lighting fixtures, raceway wiring and shelving framework for storage. The ceiling and duct work was painted flat black, while the walls were treated with black vinyl covering. The Unistrut frame was painted with a high gloss while paint to accentuate the beauty of the frame.

Courtesy of UNISTRUT INDIANAPOLIS
NORTH SHELF ELEVATION

SECTION 1–1
SHELF DETAIL

PLAN VIEW

1/2" ROD DROPS

P-1000
P-1325
P-1325

1"–6"
1"–6"
2"–0"

14 SPACES • 1"–6" EA. TYP.

8 SPACES • 1"–6" EA. TYP.

1/4" ROD DROPS

P-1068
P-1068

1"–8 13/16"

17'-1 5/8"

0'-6 13/16"

USE P-1065 AND P-1066 FLAT PLATE FITTINGS ON BACK SIDE.
QUAD CARRIAGE FOR LABS

DESIGN PROBLEM
Phillips Medical Systems required an overhead structure to house a series of four TV monitors, one surgical light and one radiation shield for their Catherization Labs. The system design required ceiling attachment capable of traveling anywhere within the lab area.

DESIGN CRITERIA
- Develop a ceiling system to support structural loads and free the floor area of electrical cords & coaxial cables
- The carriage must access longitudinal and traverse movement within the room
- Design must integrate with existing equipment and adapt to new & existing labs with perpendicular and non perpendicular structural connection.

DESIGN SOLUTION
The Quad Carriage is fabricated from P1001 and P5500 T channel. It is supported by trolleys (P2950) operating in two types of longitudinal support rails. The yolk and pedestal assemblies operate transversely in the bottom slot of the carriage assembly. Critical to the four-way operation is a longitudinal bearing trolley assembly (guide trolley), which bears horizontally on the main longitudinal support rails. This eliminates the racking force produced when the carriage is loaded and operated from diagonal corners. The guide trolley allows the main P2950 trolleys to track on longitudinal rail centerlines for ease of operation.

Courtesy of UNISTRUT WISCONSIN
QUAD CARRIAGE FOR LABS

UNISTRUT®
CORPORATION
35660 Clinton Street
Wayne, Michigan 48184

Horizon – 89-001
The Minnesota Department of Transportation (MNDOT) built a new facility to manufacture highway and street signs. This facility had an existing metal skin building used for storage of finished signs, blank signs, and raw material. A strong durable racking system was needed to house the signing materials within this existing building. The rack design had to be flexible enough to store the signage material both horizontally and vertically in order to accommodate easy access during their ongoing inventory changes.

**DESIGN CRITERIA**

- Create a rack structure that allows horizontal & vertical storage
- Design a flexible system capable of accommodating a changing inventory
- Develop easy access to stored materials
- Optimize floor storage area within the existing building

**DESIGN SOLUTION**

The project employed the Telespar™ Tubing System constructed of two standard size tubing sections with special fabricated fittings. The main support frames were made from 2” X 3” tube posts with holes (2030 F12), cut to size and welded together. The horizontal support members were made from 20F12 or 2030F12, the deeper tubes allowing increased beam strength. A specially formed "U" fitting welded to each horizontal beam allowed easy access for bolting the rack to the vertical main frame. The rack design provided a sturdy solution to the design criteria. Additionally, the MNDOT has the flexibility of using threaded rod or reuseable Telespar Tubing to accommodate further rack dividers.

Courtesy of UNISTRUT NORTHERN
THEATRE PLATFORMS

DESIGN PROBLEMS
Milwaukee World Festivals, Inc. needed to enhance the three stage areas on the Summerfest grounds. Two types of structural systems were needed. One system must house and suspend various types of speaker equipment. The other must provide an elevated lighting platform in the seating area to accommodate spotlights and sound mixing equipment.

DESIGN CRITERIA
- Speaker Towers
  - Design must accommodate various size speaker equipment
  - Framework must support graphic panels
- Lighting Platforms
  - Create an elevated platform to minimize sight problems and maximize seating capacity
  - Develop a system to support spotlight and sound mixing equipment
  - System must support attachment of tent canopy
- Speaker Towers & Lighting platforms must be free standing

DESIGN SOLUTION
The project utilized P1000, P1001, and P1001 C channel for vertical and horizontal framework. Gusseted wing columns were designed and installed by Unistrut as the base for the platform and framework. A selective combination of Unistrut fittings and United McGill interlock gratings made for a simple, clean installation and certainly 'filled the bill' for Milwaukee’s Summerfest

Courtesy of UNISTRUT WISCONSIN
THEATRE PLATFORMS
Horizon – 89-003
GARMENT RACK

DESIGN PROBLEM
The Orchid Uniform Rental Services of Oklahoma City had a warehouse fire while welding componentry for storage systems. The owner needed to restore the warehouse racking system to resume operations with a minimum of downtime. The design of the racking system must be void of welded componentry, accommodate future storage expansion, meet building and fire code regulations, and integrate with electrical and mechanical systems.

DESIGN CRITERIA
• Provide a flexible system accommodating future expansion but void of welding the componentry
• Design and install the system within a strict time schedule
• Create a storage unit accommodating shelving and hanging garment inventories
• System must provide electrical and mechanical supports and meet building and fire code regulations

DESIGN SOLUTION
The system utilized standard Unistrut parts creating shelving and hanging garment storage. Stairs, handrails, and storage supports were designed with P1000, P2000, P4100, and P5000 members. A series of standard fittings were used for framing connections without welding and all clothing rods were supported by standard pipe fittings. The completed project was expanded to twice the original design and installed within two weeks.

Courtesy of UNISTRUT OKLAHOMA
END ELEVATION

SIDE ELEVATION

Note: Brace to building structure as required.
TELESPAR® DISPLAY FRAME

DESIGN PROBLEM
The Body Shop, a woman's fashion store, required an aesthetic ceiling design to create a contemporary selling environment. The system must be able to support display fixtures, lighting fixtures, and merchandise. The design must accommodate easy access for quick display and inventory changes.

DESIGN CRITERIA

• Create a contemporary design to complement the selling environment.

• Design a flexible system capable of supporting several fixtures.

• Optimize floor space in order to allow the CUSTOMER multiple merchandising options.

• Provide easy access to the merchandise.

DESIGN SOLUTION
The design was constructed from 1 1/2 inch Telespar Tubing. Each square tube was perforated with holes on all four sides, spaced on one-inch centers. The high-speed, roll-forming technology used in the manufacturing process made the tubing flexible and adjustable without costly fabrication. The fittings were specially fabricated. All tubes were painted with a white powder coat to highlight the store’s contemporary theme.

Courtesy of UNISTRUT FLORIDA
UNISTRUT® STRUCTURAL CANOPY

DESIGN PROBLEM

Unistrut Georgia T.S. department and the CUSTOMER jointly designed a support system for decorative aluminum canopies. The design necessitated a structural system to support a series on non-structural decorative frame must remain rigid which posed a design obstacle. Additionally, the structural ceiling grid would be the vehicle for mounting electrical equipment and other materials.

DESIGN CRITERIA

• Develop an independent structure to facilitate mounting the non-structural decorative ceiling systems.

• Create a structural grid that accommodated inherent rigidity to the decorative aluminum system.

• Design load carrying members to support lights and other materials hung from the grid.

DESIGN SOLUTION

The ceiling grid developed was made from P1000 channel and suspended from an existing roof structure using 3/8" rod drops. the Unistrut grid 13’8”in length with cross members placed every 40” for strength created a hidden support mechanism allowing lights and other materials to be hung. A series of vertical P1000 drops were placed on the peripheral frame to accommodate the rigid support needed for the ornamental aluminum grid being attached.

Courtesy of UNISTRUT GEORGIA
STONE CURTAIN WALL SUPPORT

DESIGN PROBLEM
BANK ONE of Indianapolis needed an exterior support system to accommodate 1 1/4 inch-thick granite panels. The system must allow for vertical and horizontal adjustment of the granite support. Further, the framework must withstand all high-wind stresses.

DESIGN CRITERIA
• The design must allow vertical, horizontal and in and out adjustment for granite support extrusions.
• The structural framework must accommodate varying wind loads from 20 to 70 pounds per square foot in critical areas.
• Create an easily adjustable framework.

DESIGN SOLUTION
Heavy duty inserts P3754 were set in the concrete slab. The continuous slot in the Unistrut® channel framing accommodated the multidirectional adjustment requirement. A variety of channels were used: P1000 and P1001 (combinations), P3301 and P5501 to achieve the proper strength and deflection. The material was hot-dipped galvanized for lasting protection.

Courtesy of UNISTRUT INDIANAPOLIS
DESIGN PROBLEM

The First Baptist Church of Tulsa, Oklahoma needed a support structure for the choir to present a "Living Christmas Tree" program. The framework must be easy to assemble and disassemble while able to withstand loads of 20,000 pounds. Hidden rear-entry stairs are a requirement and the frame must set on existing tiered floor. The framework must accommodate rearranging its format into a "Living Cross" for subsequent programs.

DESIGN CRITERIA

- The design must set on the existing floor.
- The framework must provide ten levels of graduating width and reducing depth.
- Hidden rear-entry stairs are required at all levels, and handrail members must support decorative items.
- The structure must remain partially assembled in two or four foot end-frames for flat storage.
- Framing must accommodate a second configuration for a "Living Cross".

DESIGN SOLUTION

The Christmas tree framework was constructed mainly from P1000 with some P3300 for handrails, P2458 and P2459 tubular braces and standard fittings. Shown in the plans were eight wedgeshaped sections graduating to one level at the top. The depth per level is 24 inches with permanent end-frame sections of 24 or 48 inches. Entry stairs at the rear were built in three sections per side, thus storable with treads remaining in place.
NURSERY CANOPY SUPPORT

DESIGN PROBLEM

The Management of Norris Landscaping & Nursery wanted to create an enclosed structure for their landscaping plants and vegetation. They specifically wanted to abandon the traditional wood structures because they weren’t durable and could not give their showroom an openness that their clients needed in order to view the merchandise. Special attention was given to allow their equipment room to maneuver and they needed to place a canvas membrane over the frame for shading purposes. The system would also need to adapt to the hanging of a sprinkling system at a later date.

DESIGN CRITERIA

- Create a support structure that would allow shade to the nursery environment.
- Design must create an openness to allow unobstructed viewing by clients.
- Provide room for forklift equipment to move freely.
- Create a flexible support that would also accommodate the hanging of a sprinkling system at a later date.

DESIGN SOLUTION

The project utilized the Telespar® anchor system in 1 1/2”, 1 3/4”, and 2” pregalv. perforated tube as vertical support to the structure. Unistrut® metal framing’s P1000 and P4000 pregalv. was used as the horizontal members at the top of the canopy. The 90° fittings of P1026 and P1458 were used to connect the members and P1546 for the braces. A 7/16” diameter cad plated bolt was used to connect the telescopic sections at the base of the structure. This was to insure greater strength and stability for the system. Attachment and detachment of a canvas membrane to this canopy is easily accomplished by the management.

Courtesy of UNISTRUT CANADA
PARTIAL PLAN VIEW

14F12 TELESPEAR COL.

19'-0"  19'-0"  19'-0"  19'-0"

P1000 PG.

P1000 PG.

P1000 PG.

P1000 PG.

14F12 TELESPAR COL.

P1000

12'-0"

P1546

P1026

P1546

P4000

P1026

1 1/2" SQ TUBE (14F12)

FASTENER

FASTENER

2" SQ. SLEEVE
1'6" LONG

1-3/4" SQ. TUBE
ANCHOR 3' LONG (16F12)

NURSERY CANOPY SUPPORT

Horizon – 89-009
DESIGN PROBLEM
The City of Grand Prairie, Texas needed to attach new signage to existing street light supports. The Texas maintenance department asked that the system be a lightweight material that could easily be installed and maintained by their crews. The existing street light supports were round pipe. The support system developed must be able to affix timer boxes for school flashing lights and directional signage.

DESIGN CRITERIA
- Develop a support system that affixes signage and timer boxes to an existing structure.
- Create a lightweight support that can be installed and maintained by local crews.
- Design members to accommodate wind requirements and signage stability.

DESIGN SOLUTION
The support system utilized Unistrut® P4001 extruded aluminum channel. Connections consisted of P4006-1420 spring nuts and 1/4” bolts. A standard flared leg sign bracket and stainless steel sign strap was also used to complete the system.
STOREFRONT DISPLAY

DESIGN PROBLEM
The New Generation retail store located in Decatur, GA, was looking for a storefront motif that would entice mall shoppers into their trading area. The owners requested that the window dressing design be "imaginative" to complement the store merchandise. The material used to develop this unique storefront would also be required to support signage. Merchandise would be interwoven within the design medium and must maintain the store’s central theme.

DESIGN CRITERIA
• Storefront design must complement merchandise.
• Window dressing must be "imaginative" and suit the central theme of the retail unit.
• Merchandise would need to be interwoven with the design medium.
• The material must accommodate storefront signage.

DESIGN SOLUTION
The storefront design utilized the Axent™ space-frame system to achieve the design that the owners requested. Plastic modules 12” in length and 7/8” in diameter were developed in various vertical, horizontal and diagonal geometries. Plexiglass shelving was placed on top of the module and secured in place with an Axent shelving support clip. The red finish on the display created an eye-catching motif to attract mall shoppers. Store signage was affixed using a simple bolt connection.
SINGLE PLANE AXENT FRAME (26 MODULES @ 12")
PARTIAL STOREFRONT ELEVATION.

TYPICAL AXENT MODULE ASSEMBLY.
SECURE CARE CENTER

DESIGN PROBLEM
The Oklahoma County Detention Center was converting empty office space into a 24-Hour Care Center for inmates’ children. This center was to be a temporary shelter for these children until they were placed in foster homes. The design required that the center maintain an access to an enclosed outside play area. The materials used must maintain inmate security, while creating a safe outside environment for the children. Additionally, the type of system designed must prevent inmate tampering.

DESIGN CRITERIA
- Create a safe outside play environment.
- The designed space must adjoin an existing building.
- The structure must be durable and self-contained.
- Design must prevent inmate tampering.

DESIGN SOLUTION
The design utilized a Unistrut® frame consisting of P1001, and P1000T. The P1001 members gave the design the strength required for the sloped rafters. The P1001T material was used on that portion to the frame where attaching of a 3/8" galvanized security mesh was needed. The Unistrut frame was attached to the existing building using a modified P1325 clip with anchor bolts. The mesh was attached to the P1000T with a P1064 washer and tamper proof security bolts.

Courtesy of UNISTRUT OKLAHOMA
CLIMBING WALL SUPPORT

DESIGN PROBLEM
D.R. Climbing Walls Ltd. of Bradford, England supply climbing wall panels which simulate natural rock faces. The rock climbing panel supplier needed to illustrate a method of affixing the climbing panels securely to existing walls. The framing device needed would have to be adaptable enough to be attached to different types of concrete/brick surfaces. The system needed to simulate difficult climbing positions experienced in practical application. Additionally, the flexibility of the frame must accommodate potential installation in many different retail outdoor sporting shop locations.

DESIGN CRITERIA
- Create a framing structure that supports the climbing wall panels.
- Design must accommodate different concrete/brick wall surfaces
- Provide a framing support that simulates rock climbing overhangs.
- Provide an adaptable installation package to accommodate differing retail locations.

DESIGN SOLUTION
The project employed Unistrut® P1000® pregalvanized steel to create the vertical and horizontal members. A series of P1045 "Z" fittings with bolts were used to anchor the vertical members to the wall surface. A 12" horizontal member at the top of the framework created the overhang requirement needed to simulate difficult climbing positions. A P1026 90º fitting was used to anchor the horizontal member to the vertical frame support.

Note: The vertical members anchoring to the wall surface could be substituted with concrete inserts.

Courtesy of UNISTRUT (UK) LIMITED
UNISTRUT NORTHERN
CLIMBING WALL SUPPORT
Horizon – 90-001

UNISTRUT®
35660 Clinton Street
Wayne, Michigan 48184
AIR CONDITIONING WINDOW MOUNT SUPPORTS

DESIGN PROBLEMS
A Buffalo, New York CUSTOMER had purchased 20 window mount air conditioning units. Prior to installing these units, they found the mounting framework originally configured would not accommodate their building needs. They needed a new method of framing that would attach just outside of the buildings existing triple-rack aluminum sliding windows and the brick facade. Additionally, the area above each of the cooling units must be replaced with some type of enclosure.

DESIGN CRITERIA
• Create a window mount framework to support individual air conditioning units.
• Frame support must attach to the window sill and brick facade.
• Retrofit window installation to enclose all open areas.
• Installation schedule must meet project timetable.

DESIGN SOLUTION
The project was ideal for the Unistrut® "A" series channel and fittings. A series of A1000 and A4000 members were cut to size and utilized for the body of the framework. The understructure of the frame was supported by A4000 and attached to the brick facade at a 45° angle using the A2126 fitting and expansion bolt anchor. Plexiglass was cut to size and encased the open areas of the windows. The installation for all 20 units was completed within seven workings days.

Courtesy of UNISTRUT BUFFALO
ART STORAGE RACKS

DESIGN PROBLEM
The Indianapolis Museum of Art planned a renovation of their existing art storage area. They wanted to maintain the existing rack system and create 50 additional storage units that would be consistent with the original design. Vertical art storage racks that could be moved along a track were required. The original storage frames needed to be removed to accommodate the expansion of the storage space. Once the new space was created both the original and new storage frames would then be installed.

DESIGN CRITERIA
- Create a vertical storage rack system that allows movement along a track.
- Develop 50 additional frames that is consistent with the original rack design.
- Demount, refurbish and remount original storage frames.
- Design a rack support that can accommodate a multitude of artistic formats.

DESIGN SOLUTION
The system was designed using expanded metal panels sandwiched between P4000 and P4000 SL in a pregalvanized finish. The open slot was closed up with the P1184 closure strip. Vertical framing was suspended from a double track of P1001 and held in place with Unistrut’s P2950 trollies. A double track design gives lateral stability to the vertical storage panels. Using 1/2” rod drops, the entire framework was suspended from P1000 T which was attached to the existing ceiling. This design allows for universal adjustments of the supporting tracks. Original frames were demounted, refurbished and remounted as required.

Courtesy of UNISTRUT INDIANAPOLIS
CAROUSEL FRAMEWORK

DESIGN PROBLEM

The Great American Carousel Company planned to install a 20’ diameter carousel ride in the Woodland Hills Shopping Mall at Tulsa, OK. A framework was needed to encase the carousel leaving a 3’ service aisle and creating a gazebo design for the canopy top sides. This framework would also accommodate the attachment of ornamental ironwork. The frame design required a span of 26’ and must maintain the aesthetic appeal of the carousel. Surrounding the gazebo, gates were needed to maintain safety within the mall’s traffic patterns.

DESIGN CRITERIA

- Create an attractive but functional framework that encases the carousel without detracting from the festive appearance and overall design.
- The framing support must accommodate a decorative design and provide support for ornamental ironwork.
- Develop a system that can be easily installed and dismantled without mall traffic disruption.
- Design must maintain safe pedestrian traffic flows.
- Framework must maintain structural integrity without appearing bulky.

DESIGN SOLUTION

An open Gazebo framework design was selected utilizing P1000® and P3184 P closure strips. The body of the frame was connected using standard Unistrut® fittings. A series of 16 chord segments were connected together to create the circumference of the gazebo. Vertical members of the framework were lagged to the floor with P2346. Welded wrought iron fence sections and gusseted floral ironwork served as bracing when bolted into the Unistrut frame. The canopy support was accomplished using curved P1000 channel, pointing skyward in typical 'tent-like' fashion. The entire gazebo frame was painted white, complementing the carousel color scheme and adding to the openness of the design.

Courtesy of UNISTRUT OKLAHOMA
RACING SHELL STORAGE

DESIGN PROBLEM
Northeastern University had a need to develop storage space for approximately 80 racing shells. The length of each shell varied from 60’ for an eight man crew to 10’ for a one man crew. Due to the limited floor area space in the building that stored the boats, there was a need to develop a tiered storage system with both single and double racks. The most significant design problem was to develop a system with telescopic arms to allow the racing shells ease of removal.

DESIGN CRITERIA

- Create a racking system with moveable arms to allow easy shell removal
- The design must accommodate the varying boat lengths
- Frame support must accommodate single and double racking arms.
- Develop a tiered racking system that allowed maximum use of their storage area.

DESIGN SOLUTION
The project employed Unistrut® P1001 columns fastened to a P1000® ceiling track. The post base P2073 A was used to anchor each of the vertical members to the storage area floor. Telescopic arms were achieved using a combination of P2546 brackets, P1000 HS and P2750 rollers attached to the P1000 HS. This design allowed each arm bracket an 18” pullout. The entire racking system was painted white with closure strips and P2860-10 plastic end caps, put in place to protect the finish of the racing shells.

Courtesy of UNISTRUT NORTHEAST
PRIVACY WALLS

DESIGN PROBLEM
The Caravan Inn of Phoenix, AZ wanted to increase room privacy for their clients. They wanted to create a privacy wall on both their balcony and ground floor levels. The system design must attach to the existing structure and the materials used must withstand outdoor abuse. Additionally, the finished product design must blend aesthetically into the buildings decor.

DESIGN CRITERIA
- Create privacy screens that attach to the existing structure
- Develop a design that can be used on all levels of the structure
- Materials must withstand normal abuse of outside elements

DESIGN SOLUTION
The system was designed using Unistrut® metal framing P2000 as the vertical and horizontal web members. Attachment of the framework to the existing structure was accomplished utilizing P1026 fittings which were drilled and tapped at the pipe columns and anchored to the concrete block walls of the building. Panels of 6” wide and 3/4” depth detail pine were inserted into the open slot of the channel. The entire system was painted after installation to maintain an aesthetic quality for the inn.

Courtesy of UNISTRUT ARIZONA
ARCHITECTURAL PLAN HOLDER

DESIGN PROBLEM
The F.W. Dodge Plan Room needed a racking system that could store architectural blueprints of jobs presently being worked on. The design required that each of the over 100 plans be displayed to allow easy access by clients using them. Additionally, each plan must slide in and out of its storage track several times daily.

DESIGN CRITERIA
- Create a visible storage system to accommodate architectural blueprints
- Develop a framework that allows easy access to the drawings
- Design a durable system that withstands a multitude of different users.

DESIGN SOLUTION
The system was designed using Unistrut® metal framing for the storage system. The outside legs of the frame were made from tubular steel. The members running across the top back and front of the framework are P4000 with a series of P6000 pieces attached running perpendicular to the P4000 members. Each of the P6000 slotted members allows the blueprints to slide along the tracks for easy access and storage. The frame was painted white to blend into the decor of the plan room.

Courtesy of UNISTRUT NORTHERN CALIFORNIA
DESIGN PROBLEM

The city of Cincinnati, Ohio wanted to create a series of Jewish Menorah’s to display as part of their holiday festivities. Each of the arms of the Menorah’s needed to accommodate individual lighting, symbolizing the eight days of Hanukkah. The framework used must depict the design of the candelabra without appearing bulky and must endure the winter weather of the season.

DESIGN CRITERIA

• Create a simulated replica of the Menorah candelabra
• Design a system that could accommodate individual lighting depicting the eight days of Hanukkah
• Material used on the frame must endure the adverse weather conditions

DESIGN SOLUTION

The project employed a Unistrut® framework system in a hot dipped galvanized finish. Utilizing P1001 as the center vertical member, an additional eight arms of P1000® were extended from the center point using P1546 angular fittings. Each of the pieces adjoining to the light fixtures were connected with P1026-90° fittings. The base of the Menorah was designed with P1000 forming a 4-pod position. This design and finish gave the structure the means to endure the adverse weather conditions. The series of frames developed were:

- one frame 18’ high and 10’ wide at the top
- three frames 10’ high and 5’ wide at the top
- two frames 5’ high and 3’ wide at the top

Courtesy of UNISTRUT CINCINNATI STRIP MALL SIGNAGE
MENORAH FRAME
Horizon – 90-008

NOTE:
STANDARD FITTINGS
AND WELDED JOINTS
USED FOR FRAMING.
STRIP MALL SIGNAGE

DESIGN PROBLEM
Tenant changeover, within the strip mall setting is now causing serious problems with outside building surfaces. When the old signs are removed it causes severe damage to the buildings surface. The signs are being anchored directly into the wall, leaving surface holes, flaking, and chipping with no way to patch or to run electrical wire to illuminate the signs at night. Thus, the appearance of the building is less attractive which adds to the problems the owner or management team faces when occupancy rates are not at 100%

DESIGN CRITERIA
- Design a support system that allows the changeover of signage without damaging the surface of the building
- Create a system that allows a raceway for electrical wiring of the signs
- Develop a design that blends aesthetically into the face of the building
- The support system must allow for varying weights of the signage being attached

DESIGN SOLUTION
The system employed 1 5/8” Aluminum Unistrut® P1000® in four sections of the existing building surface. Stainless steel 1/2” anchor bolts were used to secure the channel in place. Bituminous paint on the aluminum channel and neoprene washers were used to isolate the dissimilar materials. The raceway that the channel created allowed for electrical wiring to be connected to the signage for night illumination. Closure strips and end caps were used to close off the open channel and to conceal the wire. The channel sections were hidden within the stucco or brick fascia. This wall treatment creates a viable signage support system that does not damage the surface of the building when tenant changeover occurs.

Courtesy of UNISTRUT TEXAS
STOREFRONT ELEVATION

SECTION - A

EXTERIOR SURFACE

TYP. - SEAL ALL CAPS AT UNISTRUT.

1-5/8" X 1-5/8" ALUMINUM UNISTRUT P1000 EA CONTINUOUS, WITH END CAPS.

1/2" STAINLESS STEEL ANCHOR BOLT
RESTAURANT INTERIORS

DESIGN PROBLEM

The Piccadilly Line Restaurant in San Diego, CA wanted to create an interior decor that spoke of a London underground theme. The interior design must maintain a clean, high-tech appearance, while creating the illusion of a transparent wall, bridge and vaulted ceiling. Materials required a structural capability that could support a sound and lighting system, coupled with the ability to hold signage and train station memorabilia.

DESIGN CRITERIA

• Design a system that supports the interior restaurant theme.
• Create a modular system that is easy to assemble, minimizing the need for on-site welding
• Structural integrity must be achieved with the materials used to accommodate the support of sound and lighting systems, and other display materials
• The system must maintain a clean, high-tech appearance

DESIGN SOLUTION

The Telespar® Telescopic Tubing System was utilized for this project. Its structural qualities coupled with the clean, high-tech appearance was the perfect design solution. Tubing of 1 1/2” and 2” square, with perforations on two and four sides was connected together with the TL020 angle brackets. Sound, lighting, and display systems were easily incorporated into the modular design. The entire system was powder coated blue to coordinate with the restaurant’s decor and to create a durable finish in the restaurant environment.

Courtesy of UNISTRUT LOS ANGELES
PAY-OUT CABLE RACK

DESIGN PROBLEM

Unistrut Illinois approached their clients about putting together some type of racking solution that would easily store and display their wire and cable materials in a visible spot to their customers. A strong, durable racking system was needed to house the various materials. The rack design had to be flexible enough to store and display a variety of reel sizes. Additionally, the system must be sturdy enough to withstand varying degrees of material weights, be easy to access and provide durability from normal user abuse.

DESIGN CRITERIA

• Create a rack structure that displays varying sizes of reels
• Design a flexible system capable of accommodating a changing inventory
• Develop a durable design that structurally supports the weight of the wire and cable
• Create a system that allows easy access to the materials

DESIGN SOLUTION

Unistrut® Metal Framing was the ideal choice for the racking system design. The structure developed with P1000® and P1001 as the primary horizontal and vertical strut members. Diagonal bracing was achieved using P4000 members coupled with P1546 angle fittings. Ninety degree P1458 fittings were used to connect the outside shell of the framing system. Varying vertical heights were accommodated with the P1068 fitting supporting the horizontal strut members.

Courtesy of UNISTRUT ILLINOIS
ART GALLERY RACK

DESIGN PROBLEM
An exclusive Art Gallery had desired to expand their display viewing area. Design constraints of the existing building dictated that the type of system used must be self-contained with minimal structural support from the original building. Existing light tracks restricted the design from using a conventional trolley system. Ultimately, the system had to be aesthetically pleasing as a storage and display unit, capable of supporting varying sizes and quantities of artwork.

DESIGN CRITERIA
- Maximize room storage and artwork display space
- Create a lightweight system aesthetically pleasing to client viewing
- Display surface must be flat to accommodate mounting of artwork
- Design of the tracks were not to extend into the client viewing area
- The system used must be shipped in small components with on-site fabrication

DESIGN SOLUTION
Unistrut® metal framing was ideal for this project due to the ease with which the components could be handled and assembled on-site. The P1100 combined with 1/2-16 flattened expanded metal provided the perfect medium for the weight advantage and the versatile function of the framing system. Utilizing self-lubricating wheels on the bottom of the frame and using plates guided along P5500 on the top of the frame, eliminated the need for trolleys and tracks. To complement the natural decor of the exhibit area, a graphite finish was selected and applied to the major components. The finished product economically provided approximately 5,500sq. ft. of display area consuming only 280sq.ft. of floor space.

Courtesy of UNISTRUT CANADA, LTD.
DEBRIS FILTERING SYSTEM

DESIGN PROBLEM

The city of Addison, Texas in an effort to spruce up their City Hall surroundings, wanted to devise a system to prevent floating debris from reaching the pond which sits directly behind their city offices. Litter was flowing from a nearby creek into the pond. The area serves as a picnic spot for residents and visitors, thus is highly visible and needs to be kept free from litter. The materials used must provide a barrier for litter, and allow waterflow, while remaining accessible to grounds maintenance personal. Additionally, the system needed to adjust to accommodate high water levels after a heavy rainfall.

DESIGN CRITERIA

• Create a debris filtering system
• Design a barricade that allows for free movement of waterflow
• Develop a system that allows for easy maintenance
• Provide a barrier that can adapt and blend into the surrounding environment

DESIGN SOLUTION

The heart of the filtering system is 14 gauge, galvanized, United Interlock™ Plank Grating. In this application a slotted smooth surface was chosen for the grating to allow water to flow through the slots, but not debris. The smooth surface is beneficial in the event someone comes into contact with the system they would not be harmed by a rough finish, it also permits easy removal of debris by maintenance personnel. Instead of one plank two were used, one 6” male plank with a 1-1/2” leg was anchored below the water’s surface and one was attached above the surface. This furnished additional height to compensate for heavy rainfall and a subsequent rise in the pond’s water level. Each of the 20 foot planks is bolted to the existing concrete section with a concrete anchor.

Courtesy of UNISTRUT TEXAS
ELEVATION

CONCRETE ANCHOR

UNITED INTERLOCK
G61141 GRATING
14 GAUGE STEEL
1.5" LEG
6" WIDTH
SMOOTH SURFACE
DOUBLE MALE LEG
20' LENGTHS

FLOW OF WATER

SECTION A
CONNECTION

SECTION B
SCHEMATIC

DEBRIS FILTERING SYSTEM
Horizon – 91-001
FABRIC STORAGE RACK

DESIGN PROBLEM

A Unistrut Buffalo CUSTOMER required a heavy-duty storage rack that could accommodate 330,000 lbs. to house bolts of cloth. The rack design must necessitate easy access to the material and facilitate easy maintenance as well. In addition to strength and durability, the design needed to be flexible enough to store a variety of fabric bolt sizes. Design and installation of this project had to be completed in 10 working days because of the CUSTOMER’S immediate need.

DESIGN CRITERIA

• Create heavy-duty racking system
• Design structure for easy access and easy maintenance
• Provide adjustable system
• Develop a permanent system to support 330,000 lbs. of cloth

DESIGN SOLUTION

The system employs Unistrut® metal framing for the storage system. The rack consists of P1000® channel supporting 16 gauge metal formed shelves. The diagonal bracing was achieved with P1001 members, and P1001 was used for center shelf support as well. Angle fittings P2484 and P1458 provided the connection. The rack is capable of supporting the weight of the bolts without concern for metal fatigue. This racking solution design also allows for adjustability and accessibility.

Courtesy of UNISTRUT BUFFALO
RETAIL STORE FIXTURING

DESIGN PROBLEM

The President of a retail housewares chain, Placewares, wanted to upgrade the store by employing a modular design. This design would allow him to relocate panels and shelving at will. Additionally, a ceiling system able to support electrical lighting needed to be incorporated into the plan. The result would be a contemporary design, highlighting the housewares products on display.

DESIGN CRITERIA

- Design must be easy to disassemble and reconfigure to suit changing display needs
- The ceiling grid needed to suspend electrical lighting
- Convey the idea of contemporary style and create a modular image
- Develop a system to allow accessibility to the goods

DESIGN SOLUTION

Flexibility was achieved by employing the “A” Series Channel. The project utilized a Unistrut® ceiling grid in 6’ x 12’ modules supported from the perimeter walls and columns. All system’s were constructed from A1000, and A1001 channel with A1066 and A1026 fittings. Both the truss system and column members were designed for permanent installation. The wall members are movable, in order to accommodate changing floor plans. Wall panels are inserted into the truss system and secured. The lighting fixtures are supported from the ceiling framework to complete the store design.

Courtesy of UNISTRUT NORTHEAST
DECORATIVE SIGN COLUMN

DESIGN PROBLEM
The Ontario Sign Company wanted to create a structure for an outside sign column. To stay within their design criteria they chose to match an existing interior space frame used inside the offices of the TV-46” Home Shopping Club”. Materials required a lightweight system with a minimum amount of welding. They were under a one month time constraint for materials and installation of the frame.

DESIGN CRITERIA
- Devise a system to complement an existing structure
- Design and supply the material for the system within a one month period
- Create a focal accent to surround the existing structure utilizing a lightweight system
- Provide an aesthetically pleasing sign column which is visible from the freeway

DESIGN SOLUTION
The perfect fit for this project is the Axent™ Display System framework using a 24” module. The 7/8” diameter tubes were painted silver to maintain continuity of the previous space frame installed. The finish also placed focal accent around its supporting structure. All of the connections within the Axent System were bolted, not welded, and because its purpose was decorative, not structural, it met the criteria of a lightweight system. The project was designed and the material supplied within the one month time frame.

Courtesy of UNISTRUT LOS ANGLES
GUARD RAIL

DESIGN PROBLEM

Southern Pacific railroad was in need of a system to replace 4” x 4” wooden posts used for guard rails on train trestle installations. The old wooden posts were drilled for the passage of a steel cable in three places. Over a period of time friction from the cable on the posts caused the holes to become larger and render the posts useless. Materials required a post that could support the constant friction of a threaded cable without causing damage to the post. The weather was a consideration as well, so the posts would have to withstand constant changes of the elements.

DESIGN CRITERIA

• Design a guard rail for Southern Pacific Railroad that would allow a steel cable to run through its posts
• Maintain hole size and withstand the problem of friction enlarging the holes in the posts
• Materials must stand up to all weather conditions and blend in with the environment

DESIGN SOLUTION

Unistrut was right on track with a Telespar® Telescopic Tubing System. Telespar 2” x 2” sections, in 5 foot lengths, were welded to the 90° angle clips. The posts were then connected to the trestles with the clip angles. Telespar’s prepunched holes did not require additional drilling, and the 10 gauge steel tubes proved to be the perfect solution to the problem of wood breakdown. This design provided a long lasting, visually pleasing solution for Southern Pacific.

Courtesy of UNISTRUT NORTHERN CALIFORNIA
TRADE SHOW DISPLAY

DESIGN PROBLEM

The Catel Organization was interested in creating a 20’ x 20’ display booth for trade show use. The system had to be one that could easily be broken down and transported. Another requirement was that no special field assembly be necessary. Most importantly it should be a system that was open, well lit, eye catching, and a good representation of Catel’s image.

DESIGN CRITERIA

• Create a display that required no special field assembly
• Develop a 20’ x 20’ display booth for trade shows that would draw crowds at a distance yet be open in its design
• Design a system that can support electrical lights, photo panels and product boards in addition to providing easy compartmental dismantling for booth transportation
• Provide an eye catching and practical display space

DESIGN SOLUTION

This project was designed utilizing a combination of Unistrut® Metal Framing, Axent™ Display Systems and a partition system. The major metal framing component P1000® was used to support the 1/2” lucite panels. Three hinges at each panel connection allow the display to breakdown into modular pieces for easy dismantling and transport. The decorative piece atop the booth is a four foot Axent module, with three modules making up the base and stacking three modules high. A P5501 framework was used to support the Axent system, with P1376 creating a saddle to connect the Axent to the panels. No special field assembly is required, and a simple bolt and wing nut are all that is needed for attachment. Track lighting was hung from the P5501 to provide the needed amount of light, and the entire booth was powder coated white to complete the new look.

Courtesy of UNISTRUT NORTHERN CALIFORNIA
OVERHEAD SERVICE CARRIER

DESIGN PROBLEM

The University of California, Irvine, needed a structural and an attractive way to support piping, gas lines, and electrical ducts. In order to facilitate lab work experiments it was critical that these supports accommodate a 7’ height requirement. The system also needed to work within the limitations of the existing duct work and blend aesthetically into the room’s complete design. Additionally, they required a flexible system to accommodate future changes in utilities.

DESIGN CRITERIA

- Design a system to withstand high loads and seismic zone requirements
- Create a system flexible enough to maneuver around existing ductwork
- Provide an aesthetically pleasing and fully adjustable system
- Maintain an even 7’ high elevation across the entire ceiling distance

DESIGN SOLUTION

Unistrut® Metal Framing was the answer for this project. Rails made from P1001 were attached to the primary steel structure utilizing P2786 beam clamps. P1001 column drops were placed 4’ on center, suspended from the P1001 rails, and braced with P1000® diagonals and P1546 angle fittings. These drops were designed to work around existing duct work, and by varying the length of the P1001 columns, the design maintained the 7 foot elevation from the finished floor. P1000 lateral seismic bracing is vertically adjustable for mechanical support. The carrier and busduct are hung from the bottom of the columns, which provides the needed support. The finishing touch was the white powder coat applied to the entire system, providing an attractive look for the lab.

Courtesy of UNISTRUT LOS ANGELES
REMOTE WEATHER STATION

DESIGN PROBLEM

Employees at the U.S. Weather Service needed a way to attach their weather scanning devices in a remote area. The system designed needed to be structurally supportive and constructed of lightweight materials that could be easily installed by their work crews. The materials utilized needed to withstand all types of weather and elements. The system must be a reliable one, as it will be located in a remote area.

DESIGN CRITERIA

- Develop a system to support weather instruments and withstand various weather conditions
- Create a lightweight, structural support system utilizing materials that could be installed by persons not familiar with the product components
- Design members to accommodate wind requirements and instrument stability

DESIGN SOLUTION

Unistrut® Metal Framing was the ideal choice for this project because of the ease with which the components could be handled and assembled on sight. The basic structural system consists of a truss utilizing P1001-C3 columns and P1000® diagonal braces connected with P1334 flat plates and P1359 angle fittings. The diagonal bracing assures lateral stability against wind loading. Ladder rungs of P1203 were bolted to the framework allowing easy access for maintenance. Weather instruments on top of the tower are supported by cantilevered P1000 channel and tubular knee braces. Wall ladder brackets were used to hold the data box midway up the tower, thus providing a system to support and stabilize weather station equipment.
RACKING FOR MEDICAL RECORDS

DESIGN PROBLEM

A file is kept on every ICU and CCU patient at St. Paul Hospital in Dallas containing their medical records from arrival to departure from the hospital. Patient records are stored on films, and the films are kept in boxes for future reference. A plan was essential to upgrade to hospitals current record keeping method and a racking system was required to organize films and allow easy access for hospital personnel as well. The system had to accommodate a large number of films in a limited storage space. Additionally, the rack must be affordable for a limited hospital budget.

DESIGN CRITERIA

- Create a racking system that allows for easy data file access and referencing
- Design a flexible structure to accommodate a large number of films in a limited storage space effectively and affordability
- Optimize floor storage space effectively and affordably

DESIGN SOLUTION

Designing and installing a racking system using a P4000 HS was the answer to the hospital’s dilemma. The film storage rack measures 7’ tall, 6” wide and 10’ long. It can accommodate up to 11 shelves at 80 films per shelf. The racks consist of Unistrut threaded rod used as shelving, supported by P4000 HS columns, allowing for a completely adjustable system. The holes in the pierced section allow for a through bolt, as well as a standard Unistrut® nut connection. Constructed to maximize all of the available storage space, the rack provides effective use of the small space, while providing an organized, attractive and practical system for convenient retrieval of films.

Courtesy of UNISTRUT TEXAS
RETAIL DISPLAY SYSTEM

DESIGN PROBLEM

A Georgia supermarket wanted to provide a display space for their in-store flower shop, but floor space was at a premium. With this display system, flexibility and easy access is a must because the displays will be changed frequently. In addition, this system needs to blend into the store environment, so as not to draw attention away from the merchandise. Materials require a display strong enough to support merchandise but light enough to hang from the ceiling. The design calls for visual appeal, as well as function.

DESIGN CRITERIA

• Install a system light enough to suspend from the ceiling, but strong enough to support hanging merchandise
• Create a flexible display system that can easily accommodate frequent changes in arrangement
• Design an unobstructive and visually appealing space for flower and plant displays

DESIGN SOLUTION

Unistrut® Metal Framing provided the necessary strength, flexibility and visual aesthetics to accommodate the flower shop’s needs. Members of P1000® and flat washers were used to create 4 triangular grids to complete the 17’ x 17’ area. The grid was suspended from the existing ceiling with 3/8” threaded rod. The triangular grids were shop welded, which allowed for easy field installation. P2749 trolleys roll along the inside of the channel allowing full adjustability. The finishing touch was a powder coat finish of winter white to blend in with the ceiling and the rest of the retail space.
P2749 TROLLEY DETAIL

OVERALL PLAN VIEW

SECTION A

ELEVATION

7/16" Ø HOLE TYP.

SEE DETAIL ABOVE FOR TROLLEY HANGER ATTACHMENT

ALL P1000 CONNECTIONS ARE WELDED

3/8" Ø ATR HANGERS BY OTHERS

14' 0" A.F.F.
DESIGN PROBLEM

Tennessee State University was looking to renovate and expand their chemistry, math, and physics building. Part of the renovation included plans for a new chemistry research laboratory. Plans called for construction of workstations in the chemistry lab. Each lab work station in the chemistry lab. Each lab work station needed to allow for lighting, piping, and a power supply that could be reached from each side of the lab tables. Tennessee State was also striving for a high-tech look for their new lab.

DESIGN CRITERIA

- Integrate mechanical and electrical requirements with a structural system
- Design a workstation system with power, piping, and lighting accessibility from both sides of the lab station
- Create a high-tech look for the research lab.

DESIGN SOLUTION

An involved system like this one called for the adjustability and strength of Unistrut® Metal Framing and fittings. P1001 members were used for horizontal and vertical supports. P1000T members were attached to the double channel in order to provide support, and P1546 coupled with P1000® offers the lateral bracing needed for the vertical members. Supporting frames permitted connection of all lighting, piping and power, as well as provided the high-tech look that the lab wanted to achieve. Unistrut Cush-A-Clamps® were used at each faucet to prevent movement. The completed work stations met all of the clients design requirements and will provide flexibility to make changes in the future.
EQUIPMENT PLATFORM

DESIGN PROBLEM

A major manufacturing company was in need of a platform in order for their sorting machine to be at the right height for the sorters to reach their parts and pieces coming off of the line. Because of the varying floor elevation, the sorter did not sit level. Another consideration was the weight of the equipment. Previous attempts to solve the problem included a wood framed platform, but it was unable to stand up to the constant vibration from the sorter. More importantly, it did not conform with OSHA specifications.

DESIGN CRITERIA

- Develop an equipment platform that meets OSHA requirements to accommodate the heavy machine sorter
- Create an adjustable system to work with the inconsistent floor elevation
- Install an equipment stand that will withstand the constant vibration of the sorting machine

DESIGN SOLUTION

The combination of Unistrut® Metal Framing coupled with United Interlock™ plank grating created the components to develop the equipment platform. P1000® welded trusses were used to model the main structure of the platform. The result meets with OSHA design load criteria, as well as provides a system strong enough to hold under the fatigue loading created by the supported equipment. Flat plates welded to the P1000 stub columns and the trusses were attached with 90 degree angle fittings which allowed adjustability to compensate for the variance in floor elevation. United Interlock grating and P1000® were also used to complete the job with the construction of a stairway.

Courtesy of UNISTRUT DETROIT
Overhead Trolley System

DESIGN PROBLEM
A Unistrut Detroit CUSTOMER had a problem common to many assembly lines... too many tools in too small a space. They needed an overhead structure which would clear the floor and table tops of tools and cables in the assembly line area. The structure had to provide the workers with quick and easy access to all tools during the various stages of assembly. Additionally, tools needed to travel freely with the workers.

DESIGN CRITERIA
- Design an overhead structure to accommodate several tools of various weights and sizes.
- Create a system which allows for longitudinal and traverse movement of the tools along the structure.

DESIGN SOLUTION
Unistrut® Metal Framing provided both the strength and flexibility needed. Vertical supports and longitudinal bracing using P1000® channel provide easy traverse and longitudinal movement. Unistrut trollies were used to suspend and organize tools overhead.
All Channel — P1000, Except Trolley Guide — P1001A3, and Ceiling Brace — P1001

Overhead Trolley System
Horizon – 94-001
DESIGN PROBLEM

A Unistrut Detroit CUSTOMER needed assistance with designing a mezzanine type structure for the Henry Ford Museum. The CUSTOMER wanted to use Unistrut products to construct hand rails, guard rails, wall frames and a large ceiling grid. The entire structure was to have an industrial look… to fit with the rest of the museum.

DESIGN CRITERIA

• System should be compatible with existing structure.
• Mezzanine supports must be strong enough to allow people to walk on top of them.
• Ceiling Grid should be aesthetically pleasing and able to support replaceable banners.

DESIGN SOLUTION

Unistrut® Metal Framing channel and accessories were used to create the mezzanine, ceiling grid and wall supports. Telespar® Tubing was used to create hand rails and guard rails. The detail drawing (on back) shows the solution for the ceiling grid.

Courtesy of UNISTRUT DETROIT
LABORATORY SUPPORT SYSTEM WITH STORAGE DRAWERS

DESIGN PROBLEM

Eli Lilly Pharmaceuticals has been using Unistrut Laboratory Support Systems for years because of the simplicity, accessibility and flexibility. The only problem they encountered with the system was that items had to be stored in the open. The CUSTOMER needed to have an area to organize and store items without taking up valuable counter or shelf space.

DESIGN CRITERIA

- Develop an enclosed storage area compatible with the existing laboratory support system and decor.
- Create a storage area that does not interfere with existing counter or shelf space.
- The storage area must be able to accommodate items of various sizes

DESIGN SOLUTION

Unistrut Indianapolis was able to provide a simple solution to the CUSTOMER's problem. Steel drawers were designed to fit directly under the counter top and between vertical legs... constructed using Unistrut® P1000® metal framing. These drawers can be constructed of any depth or width to fit the existing support system.

Courtesy of UNISTRUT INDIANAPOLIS
LABORATORY SUPPORT SYSTEM
Horizon – 94-003

All Channel — P1000

Front View

Side View

P2494 R-L

P2497 R-L

Drawer (typ. 10" x 30")

P1325

P1325 P1026

P1026
TIRE STORAGE RACK

DESIGN PROBLEM

A town garage needed a central location for storing their truck tires. The storage system had to be strong enough to support the weight of the tires, yet adjustable to accommodate varying tire sizes... some as large as 43 inches in diameter. Additionally, the storage area was limited to 45 feet of space along a wall.

DESIGN CRITERIA

- Build a strong rack to store large truck tires within 45 feet of floor space along a wall.
- Create an adjustable system to accommodate tires of different diameters and widths.
- The rack should allow easy access to individual tires.
- The rack must be sturdy enough so that it does not move as tires are being loaded and unloaded.

DESIGN SOLUTION

Unistrut® Metal Framing provided both the strength and adjustability needed. The rack was built in nine five-foot wide sections using P1000 and P1000 HS channel. P1047 fittings were used to attach the top of each section to the wall... preventing the rack from tipping forward when unloading tires. Within each section, 1/2” threaded rod was used to create dividers between the tires. The spacing between the rods is adjustable to accommodate varying tire widths.

Courtesy of UNISTRUT BUFFALO
TIRE STORAGE RACK
Horizon – 94-005

35660 Clinton Street
Wayne, Michigan 48184
STORAGE/DISPLAY RACK

DESIGN PROBLEM
A national furniture distributor needed a storage/display rack for tabletops and countertops. They wanted to provide their customers a full view of the many different sizes and styles offered. They also wanted their customers to be able to easily access their selections.

DESIGN CRITERIA
- Design a vertical rack to store tabletops and countertops
- Create a display with adjustable compartments to accommodate tabletops and countertops of different sizes.
- Develop a durable yet easy-to-assemble display.
- Provide easy access to the product.

DESIGN SOLUTION
Unistrut® Metal Framing was used to meet the CUSTOMER’s needs. The rack was constructed from P1000® channel and standard angle fittings. To make on-site assembly easier for the CUSTOMER, Unistrut Georgia pre-assembled the end frames and intermediate dividers.

Courtesy of UNISTRUT GEORGIA
STORAGE/DISPLAY RACK
Horizon – 94-004
UTILITY SUPPORT SYSTEM

DESIGN PROBLEM

Lord Aeck & Sargeant, an architectural firm, needed to design a utility support system for the Fuller E. Callaway Jr. Manufacturing Research Center at Georgia Tech. The support system had to be compatible with an existing handrail system. It also had to convey an industrial look… yet be aesthetically pleasing.

DESIGN CRITERIA

• Design a utility support system to support pipes, conduit and lights.
• Incorporate an existing handrail system into the utility support system.
• Improve the safety of the existing handrail system.
• Maintain an industrial “showcase” look of a complete system.

DESIGN SOLUTION

Unistrut® Metal Framing was the answer to the CUSTOMER’s needs, providing both compatibility and function. Using P5000 uprights and cross members, a utility chase system was created and attached to the handrails to form a unified system. A safety fence was created by attaching cables through Unistrut clamps onto the existing handrails.

Courtesy of UNISTRUT GEORGIA
DESIGN PROBLEM

The Oklahoma Department of Transportation needed to perform maintenance and periodic safety checks on highway signs. These signs are located on the overhead structures that bridge over the highway. The workers needed a safer method of access to these signs.

DESIGN CRITERIA

- Design a safety system capable of supporting two people.
- System must allow workers to move safely and freely across the overhead structure.
- System must provide quick and secured access.

DESIGN SOLUTION

A Unistrut® Fall Arrest System provided the perfect solution. The system was installed on the overhead structure using specially designed support bars at each end of the structure. United Interlock® Grating was used to create a walkway from one end of the structure to the other.

Courtesy of UNISTRUT OKLAHOMA
STAIRWAY AND WORK PLATFORM

DESIGN PLATFORM

A Unistrut Western CUSTOMER required a platform with stairway access and handrails for the purpose of filling molds on either side of the platform. An open workspace 6’8” in height was also required below the platform. The system also needed to be easily adjustable to allow for future modifications.

DESIGN CRITERIA

- Design a platform to support a total load of 750 pounds
- Stairway, handrails and toe plates must meet code and safety requirements
- Clear access of at least 6’8” is required under stairs and platform
- Complete system must be easily adjustable

DESIGN SOLUTION

A combination of Unistrut® Metal Framing and United Interlock® products were used to meet the customers requirements. Unistrut P1000 was used for the platform uprights and floor joists, handrail supports and handrails. P1001 B was used to receive United Interlock stair treads on the inside of the stair rails and on the handrail supports on the outside of the stair rails. The P1001 B also offered enough stability so that an additional support at the midpoint of the stairs was not required. United Interlock toe plates were used in combination with at plywood floor on the platform.
Side View

STAIRWAY AND WORK PLATFORM
Horizon – 95-001
WHEELCHAIR ACCESS RAMP

DESIGN PROBLEM

Vineyard Lake Association wanted to improve access to their boat dock and boat launch area. Several disabled and elderly members of the association were in need of a ramp which would accommodate their wheelchairs. The ramp needed to be water-resistant and non-slippery. And, because of the potential problem pebbles, twigs or other small debris can create for a rolling wheelchair, it was especially important that the ramp be designed to avoid these hazards.

DESIGN CRITERIA

• Design a ramp which provides safe access from the shore to the boat dock and boat launch area
• The ramp must have height adjustability
• The ramp must be easily removable during the “off-season”

DESIGN SOLUTION

Three Unistrut products were combined to create the ideal solution to meet the CUSTOMER’S needs - United Interlock®, Grating, Unistrut® Metal Framing and Telestrut® Telescopic Strut. The ramp was constructed from 2 1/2" x 6" x .080 aluminum interlocking grating planks supported by metal framing. The grating’s non-skid surface is slip-resistant, even when wet. And, the slots in the grating allow for the passing of small debris. Telestrut was used to create sturdy, adjustable handrails.

Courtesy of UNISTRUT DIVERSIFIED PRODUCTS COMPANY
All Channel P1000, except as noted

1. P1282 90° Fitting (to attach handrail)
2. P1843 Hinge (to allow for shifting)
3. P2072 w/6”x60” Mud Plated Welded or Bolted to Base
PIPE SUPPORT SYSTEM

DESIGN PROBLEM
A Unistrut Gulf CUSTOMER needed a means for supporting pipe and conduit on the roof of a building. This support system needed to allow the pipes to vibrate, expand and contract without causing any problems with the roof system. Also, the support system could not penetrate the roof and had to easily adjust for different pipe sizes and loads.

DESIGN CRITERIA
- Design a support system to accommodate various sizes of pipe and conduit
- The support system must be flexible so as to adapt to varying site conditions
- The support system must allow for the expansion and contraction of the pipes
- The support system must distribute the load so as not to compromise the roof system

DESIGN SOLUTION
Unistrut Gulf was able to provide a simple yet innovative way to meet all of the CUSTOMER’S needs. Telestrut was chose as the perfect metal framing member to insert into a recycled plastic base. Telestrut offered the strength, compatibility and adjustability required to meet all of the design criteria. P92000 was used for both the uprights and horizontal portion. This allows for the use of any 1 5/8” series member for added strength. And, Telestrut’s telescoping feature provides the flexibility needed to adapt to site conditions or future additions. This system may be used in new constructions or to retrofit existing conventional pipe support systems.

Courtesy of UNISTRUT GULF
HORIZONTAL/VERTICAL STORAGE RACKS

DESIGN PROBLEM
The Buffalo Historical Museum required both horizontal and vertical storage spaces for framed and unframed art. The racks needed to be strong enough to support the weight of the several pieces of artwork. And, because this artwork is old and many of the pieces very valuable, it is important that the racks be sturdy so that there is no chance of the rack tipping over as additional pieces of artwork are added.

DESIGN CRITERIA
- Develop a structurally strong, yet economical, storage rack
- Rack must be able to accommodate either horizontally or vertically stored flat items
- Rack must be durable yet light enough in weight to be easily moved
- Rack must be constructed of materials which are fire retardant with minimum outgassing from paint

DESIGN SOLUTION
Unistrut Buffalo was able to meet the CUSTOMER’S needs by using the A 1000 series of Unistrut® Metal Framing as the main component. The framing system is lightweight, yet strong, and easy to assemble. Steel shelves were used to provide additional stability and offer more open space than thicker plywood.
SUSPENDED PARKING SIGN

DESIGN PROBLEM

A Unistrut Midwest CUSTOMER needed a support system to suspend three 4’ x 8’ aluminum signs three feet from the ceiling of a shopping mall parking garage. The support system needed to hold the signs stationary even during windy weather conditions.

DESIGN CRITERIA

- Design a sign support which is sturdy, yet maintains a “modern” look
- Sign support must withstand windy weather conditions and keep the sign stationary at all times
- Sign support must be designed to allow for easy maintenance and replacement of the sign

DESIGN SOLUTION

Unistrut Midwest utilized Telespar® Telescopic Tubing to meet the CUSTOMER’S needs. Eight inch square plates were welded to two 1’ pieces of 22F12 tubes to create mounting bases. A frame was then constructed from 20 F12 tubing, with slots milled into the top and bottom rails to accommodate the sign. Once the sign was positioned into the frame, the rails were joined on each end with 3/8” hex nuts and washers. Maintenance and replacement of the sign can be accomplished by simply removing these two hex nuts. The CUSTOMER was pleased with the aesthetic qualities and the stability of the Telespar.

Courtesy of UNISTRUT MIDWEST
SUSPENDED PARKING SIGN
Horizon – 95-005

Customer's Aluminum Sign

96''

48''

36''

8'' x 8'' Flat Plate

1/2'' x 3'' Concrete Anchor

P22F12, Welded to Plate

3/8'' Threaded Rod

P1325

All 20F12 Telestrut Channel, Except as Indicated

3/16'' Milled Slot, Start and Stop 2'' from end.
CONVEYOR SHUT-OFF SYSTEM SUPPORT

DESIGN PROBLEM

A Unistrut Midwest CUSTOMER needed to support a conveyor shut-off system in their manufacturing plant. The support system would need to run the length of each conveyor and have adjustable drops at each work station. Each of these drops needed to support an electronic box. Attached to the electronic box is a pull cord. If a worker sees a problem with a part on the conveyor line, he or she pulls the cord to stop the conveyor and activate the warning light on the electronic box, alerting the floor supervisor to come and attend to the problem.

DESIGN CRITERIA

• Design an efficient, low-cost support system
• The support system must easily attach to the existing ceiling structure
• The support system must be strong and durable
• The support system must have drops which can be easily adjusted to accommodate workers of various heights

DESIGN SOLUTION

The telescoping feature of Telespar® Tubing combined with the strength and durability of Unistrut® Metal Framing provide the desired results for the tubing. For added stability, the drops are attached to the Telespar tubing using Unistrut P2452 braces and P1325 fittings. The entire support system is attached to the existing structure using specially fabricated beam clamps which are similar to Unistrut P2785 beam clamps, but able to be used with 2 1/2” Telespar tubing.
CONVEYOR SHUT-OFF SYSTEM SUPPORT

UNISTRUT CORPORATION
35660 Clinton Street
Wayne, Michigan 48184

Horizon – 95-006

SPECIAL B-CLAMP
FABRICATED TO FIT 24F12

EXISTING SUPPORT

24F12 Telestrut Channel

TELESCOPING
ADJUSTMENT

P1325

P2452

CABLE PULL

ELECTRONIC BOX W/LIGHT

P2452

P1325
EQUIPMENT ACCESS PLATFORMS

DESIGN PROBLEM
A Unistrut Western CUSTOMER needed to create a safe way to access equipment to perform routine maintenance. Because of the warm air emitted from the machinery during its operation, these platforms needed to allow for proper ventilation. The platforms also needed to be strong enough to support the weight of the machinery.

DESIGN CRITERIA
• Design a lightweight platform which can span up to eight feet
• Platform must support up to 125 pounds per square foot
• Platform must be slip-resistant
• Platform must have safety handrails

DESIGN SOLUTION
Strong, lightweight, and versatile... United Interlock Grating® with its non-skid surface was the ideal choice for this project. Interlocking grating planks were used between the existing beams to create a walkway around the machinery. Unistrut® Metal Framing was used to create handrails.

Courtesy of UNISTRUT WESTERN
Grating Layed out to Fill Area
Walkway Railing (see detail)

9" x 2" Grate
6" x 2" Grate

Existing Beam
Beam Clamp

P2469
P5501 Floor Supports

Telestrut Rail Support Welded to 4" x 2" x 1/2" Steel Plate and Attached to P5501

Kick Stop

P1000 Guardrail
P1000 Vertical Support

P1026

P1000 Handrail

P2345

P1000 Guardrail

P5501 Floor Supports

P2469