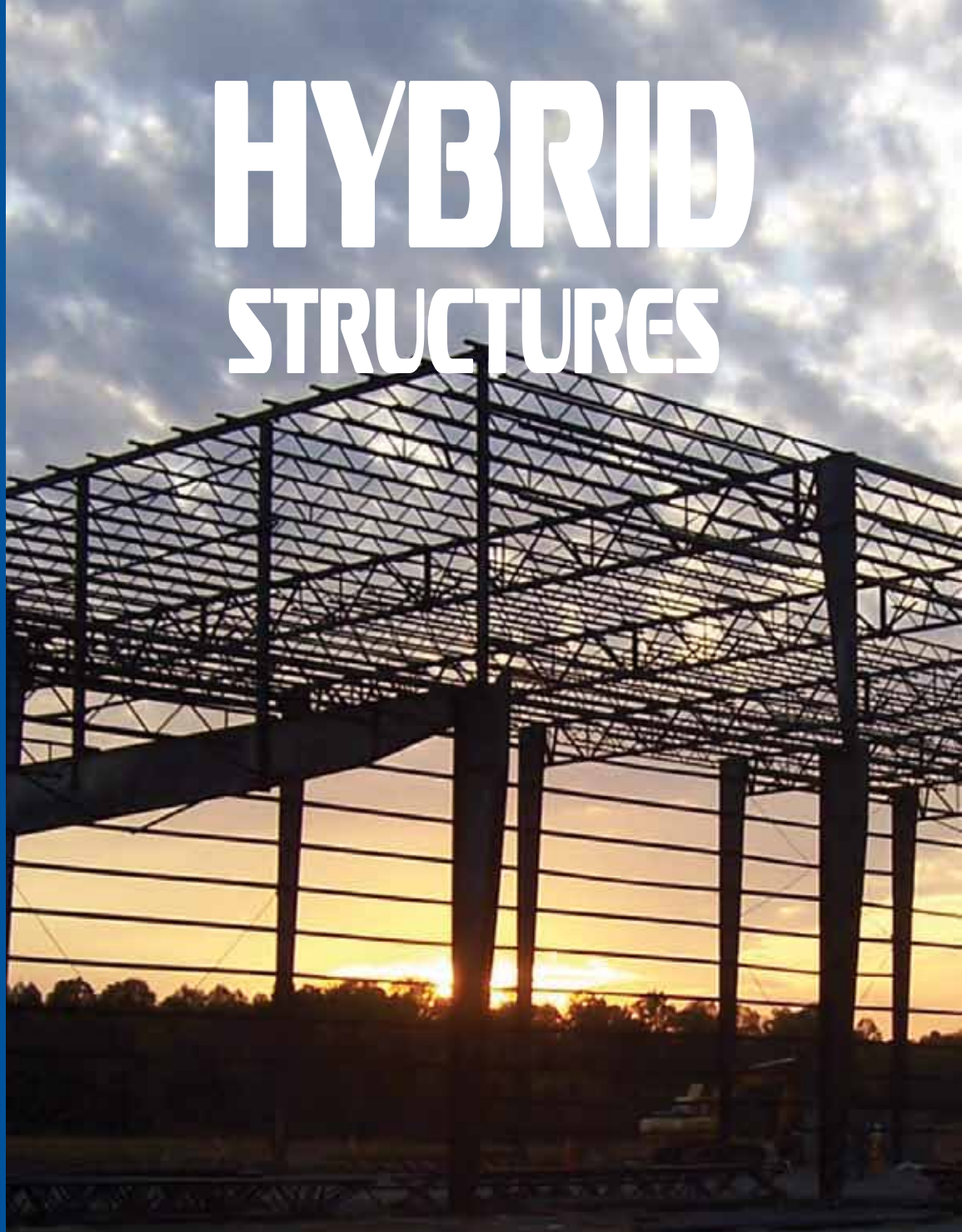




V A R C O P R U D E N B U I L D I N G S

HYBRID STRUCTURES



Varco Pruden Buildings' innovative building technique combining conventional construction materials with the advantages of pre-engineered steel systems.



Hybrid Structures — The Complete Solution

VP Hybrid Structures offer an economical alternative combining the benefits of “conventional” steel construction with the economical capabilities of traditional pre-engineered building systems.

Few companies have the ability to design, engineer, supply, and erect hybrid construction projects. Varco Pruden Buildings is the leader in this field.

Varco Pruden Buildings

The combination of our design, engineering and manufacturing resources makes for a highly skilled team in the hybrid construction discipline, delivering the best value for your construction dollar. VP is able to oversee the entire hybrid construction project and coordinate all facets to meet schedules and budgets. Plus, VP Buildings offers extensive design flexibility with our wide variety of framing systems, roofing systems and wall panel options, all backed by industry leading warranties.

Authorized Builder Network

VP Authorized Builders, our network of professional builders are located throughout North America and in select international markets. These highly trained specialists stand ready to assist in the planning, design and erection of the complete hybrid building.

Varco Pruden Corporate Accounts Team

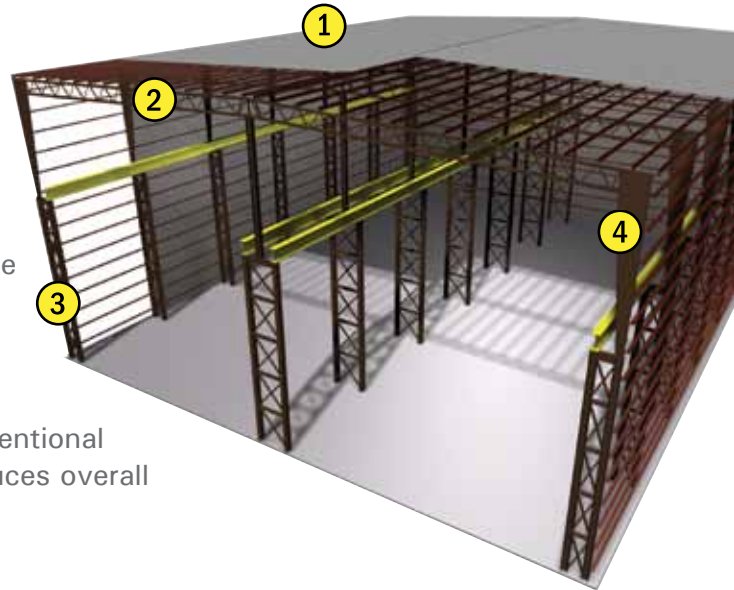
In addition, VP Buildings’ Corporate Accounts Team can work with companies that are anticipating multi-location projects and want to coordinate their entire building program through one contact point.



ADVANTAGES OF HYBRID STRUCTURES

A Varco Pruden Hybrid Structure utilizes these key components:

1. A proven standing seam metal roof (SSR) or metal wall system by Varco Pruden Buildings offers long-term weather protection with minimal maintenance and low life-cycle cost.
2. Varco Pruden steel wall girts and roof purlins provide economical support for wall and roof covering.
3. Conventional steel-laced columns improve strength for increased load capacity.
4. Pre-engineered steel framing system on top of conventional steel columns advances material efficiency and reduces overall project costs and erection time.



*The best of both
steel-framed
construction systems*



Success Begins with Planning

When planning a new building or expanding a facility, the project – or sections of the project – should be evaluated prior to design to determine if a hybrid approach best suits the building requirements.

Factors to consider include:

- support for overhead cranes;
- deflection limitations;
- equipment support;
- building heights and spans;
- environmental conditions;
- other operational specifics relevant to each building or building section, as well as the needs of the end user.

When compared to conventional structural steel construction, Hybrid Structures offers the opportunity to create the most efficient design possible. That's because hybrid construction

utilizes the efficient design practices of VP Buildings' pre-engineered systems combined with available structural steel shapes.

Historically, the pre-engineered industry has utilized 3-plate fabricated members to meet the exact design requirements that facilitate the functional needs of a project.

With the hybrid design concept, VP Buildings takes the same approach with all steel elements to optimize the steel used in the building. This approach minimizes the overall cost of the building material required to fulfill the functional needs of each project.

In addition to minimizing the cost of the building, VP can also minimize the erection time required on the site because many complete assemblies are fabricated in VP's plants. This also saves erection labor costs and allows for earlier occupancy, resulting in additional income for the end user.

ADVANTAGES OF HYBRID CONSTRUCTION



There are a number of major advantages gained by using the hybrid system including:

Material cost reduction

By combining pre-engineered materials with conventional steel, hybrid structures substantially reduce design, material weights, fabrication and shipping costs for the complete building structure.

Time savings and lower direct labor, equipment and site overhead cost

Because of the substantial amount precise manufacturing and pre-assembly prep work done during the design and manufacturing process, there are considerable savings in costs of direct labor, equipment and construction site overhead. Further the time needed for field erection can be reduced by as much as 35%.

Buildings with multiple cranes demand increased load-bearing capabilities. These conditions are easily accommodated with hybrid structures.

Single source responsibility including BIM

With hybrid construction, the complete building structure and enclosure are designed, fabricated and supplied by one manufacturer. All issues related to design fabrication of the complete building structure – crane support structures (when applicable), secondary steel support system, building insulation, building wall sheeting and building roof system – are the responsibility of VP. In addition, VP Buildings can include all wall openings, doors, roof curbs, ventilators, louvers and other building accessories.

VP can provide a BIM model of your structure in industry standard formats. BIM models are available from an “initial quote concept” through a “final construction” model based on final design and detailing to support your planning and development.

Customization

Every VP hybrid structure is a unique solution, totally custom designed to meet the specific needs of each owner.



TYPES OF BUILDINGS & CONDITIONS

Types Of Buildings

Varco Pruden Hybrid structures can be utilized for:

- Aviation & Transportation
- Manufacturing & Mills
- Office Buildings
- Power Generation Facilities
- Warehouses
- Maintenance Facilities
- Indoor Sports Arenas & Practice Facilities
- Military & Government
- Environmental & Recycling

Building Conditions

Hybrid structures offer an economical system when the building must support larger structural loads created by conditions such as:

- Bridge Cranes
- Crane Capacity Over 20 Tons
- CMAA Crane Class D, E or F
- Multiple Crane Requirements
- Clear Spans Greater Than 150 Feet
- Building Heights Greater Than 50 Feet
- Heavy Monorails
- Heavy Industrial Equipment
- Heavy Load Floors or Multiple Mezzanines
- Conveyor or Equipment Support
- Heavy Environmental Loading
- Tight Deflection and Drift Requirements
- Radius Roof Structures



SUCCESSFUL HYBRID PROJECTS



New Gold Inc., Kamloops, British Columbia

This 90 ft. tall structure houses grinding, flotation and concentration process equipment at New Gold's Afton Copper & Gold mine. Building features include zinc prime coated structural steel, pipe racks, 2nd & 3rd floor mezzanines, 50 ton capacity cranes, and insulated roof and wall panels.



Bethlehem Steel Cold Roll Facility Sparrows Point, Maryland

Bethlehem's 850,000 sf steel processing and handling facility is a great example of hybrid construction. The facility receives, handles, processes, and ships coil steel for use in the appliance, automotive and construction industries. The structure supports and houses over a dozen overhead cranes ranging in capacity from 40 to 170 tons with bridge spans from 70 to 120 feet. The use of laced columns (fabricated from conventional steel shapes) up to the crane runway height meets the tight deflection requirements. Above the runway heights, 3-plate columns and VP Open Web Truss systems are utilized to construct the most economical building enclosure possible.



NSA Southwire Aluminum Pot Line Hopkinsville, Kentucky

This facility was designed complete with crane support and runway system for a 40 ton daily operation crane as well as a 100 ton maintenance crane. This project consists of multiple buildings 68 ft. wide by 1,250 ft. long.

WHAT CLIENTS ARE SAYING

Mike Delasandro
Materials Manager,
Fluor Daniel, Inc.

“The hybrid building system helped us to meet very tight project schedule milestones while keeping the building enclosure cost down. The steel arrived in a timely manner and the erection process went very fast due to the shop fabricated column assemblies and the precise coordination between the conventional steel and the pre-engineered assemblies.”

Ronald J. Redman
Project Manager,
Pittsburgh Tube Company

“The hybrid construction system provided us with a very functional building, quickly and economically. Our new 100,000 sf facility was completely designed in less than two months after notice to proceed. When the steel arrived on site many of the components were shop assembled and all of the steel was designed to have bolted connections, so the erection process went extremely fast. The end result was a very attractive facility, on time, and within budget.”

Colby Reeves
Executive Vice President,
Blaine Construction Corporation

“The hybrid construction methods have helped our company to be extremely competitive on large industrial projects, especially when there are large cranes or multiple cranes supported by the building structure. The hybrid technique allows for a faster design process and earlier construction starts. In addition, the building’s structural steel can be shop assembled to a great extent to allow for faster erection time frames. We are able to take advantage of the economies of the pre-engineered roof structure, secondary components, and covering, along with the conventional steel crane support system to provide the end user with the most efficient facility possible.”



Your Standards Are Our Standards



Varco Pruden Buildings leads the industry in meeting or exceeding the highest standards of testing and certification.



Higher levels of accreditation are earned through strenuous testing and a commitment to manufacturing excellence.



Architects, specifiers and building owners rely on Varco Pruden Buildings because we meet the most comprehensive testing and compliance standards in the building system industry.



There's more. US Army Corps of Engineers, Miami-Dade County, Underwriters Laboratories to name a few. To see all the standards that Varco Pruden meets or exceeds, visit our website, www.vp.com/About/Certifications.



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