Composite Cooling Solutions (CCS) is a custom cooling tower solutions provider specializing in the design and build of field-erected fiberglass and concrete cooling towers. Our exclusive tower structure is unlike any other on the market — using custom-engineered components and a flexible, open-frame design to enable faster and safer project execution and lower costs over the life of the tower. From our founding leaders who pioneered the cooling tower industry to our experienced and responsive teams, you can rely on CCS to deliver a lasting solution for your cooling needs.

We do things differently and it makes all the difference for you.
At CCS we have designed an exclusive tower structure that is unlike any other on the market — providing real and lasting advantages for you.

Superior Quality and Reliability

Up to 200% greater rigidity in our raw material. We custom manufacture our FRP material using a special glass lay-up and higher glass content with no fillers in our resin for increased tensile strength and shear resistance.

Greater UV protection and wider pH range for chemical resistance. Our resin coating is 2-4× thicker than our competitors’ standard resin, making our towers better able to withstand the elements, including extreme temperatures and sun damage.

More durable structure made with custom components. CCS does not rely on “off-the-shelf” shapes. Our components are designed, engineered and tested specifically for cooling tower use.

Stronger connections and tighter joints. Our patented two- and three-bolt structural connections are stable without spacers or torquing, and we anchor every column to the basin.

More flexibility in performance. Our Multi-Flo™ distribution system allows the number, location and capacity of spray nozzles to be optimized to match tower dimensions and performance requirements. With Multi-Flo, turndown capabilities can be as low as 30-50% of total capacity for efficient tower operation through a wider range of load conditions.

Optimal Project Execution

ThermoFit™ for optimal design. CCS' ThermoFit software is a powerful sizing and selection tool that helps engineers and CCS representatives design and select the optimal tower design for the application from a range of possibilities. This saves valuable design time up front, matching size and performance requirements without being restricted by other manufacturers’ “standard product” limitations.

Shorter lead time. We developed a proprietary software system to automate structural design and bill of materials, enabling industry-leading delivery time of materials to site.

Flexibility to fit any footprint. Only CCS uses 6 x 6-inch “power columns” that can be spaced at any increment up to 15 feet apart. That means our towers can be matched to the exact space available for improved efficiency and lower energy costs.

25-35% faster installation for less time on site. With larger columns and spacing, our structure requires 75-85% fewer columns, connections and hardware pieces than other providers’ towers — significantly reducing the training and installation hours needed. Our lean assembly processes include pre-packaged/marked components and standardized hardware to eliminate guesswork and lower risk by reducing overall time on site.

Safer construction with fewer potential interruptions. Our stable, open-frame design allows the crew to tie-off anywhere on the structure and provides room in the basin to maneuver scissor lifts rather than working from ladders and scaffolding, increasing safety and efficiency.

Lower Lifecycle Costs

Better material-to-labor cost ratio. Our exclusive tower structure and streamlined build process typically equates to a 35% reduction in labor hours, so we can invest more of your budget into the high-quality materials that stay on site and create return value.

Reduced operating costs. Because our towers can be built to the exact footprint available, we are able to utilize the optimal motor size and lowest horsepower possible to increase efficiency and reduce utility bills.

Lower maintenance costs. The open-frame design of our towers allows easy access to the basin, making it faster and less costly to clean and inspect. Exclusive tower features like our patented connections with no annual torque requirements and our thicker, longer-lasting UV coating yield on-going maintenance savings.

Longer tower life. CCS towers are engineered for a minimum structural design life of 50 years, ensuring that your investment will pay off for years to come before a replacement is needed.

Affirming Customer Experience

Confidence of working with the FRP experts. From our founding leaders who developed the first fiberglass tower in 1981 to the construction of North America’s largest crossflow FRP tower in 2010, CCS has more FRP tower experience than any other provider.

Solutions to your unique challenges. When you work with CCS, you benefit from the extensive knowledge and ingenuity of our people across all functions — from our engineers and sales team to our project managers and local representatives. As a custom tower provider, we work with each customer individually to design the best solution to fit the requirements.

Effective and efficient service. CCS provides responsive service and follow-up on initial inquiries and submittals, during project execution and for any post-installation issues. We have a solid reputation in the industry for delivering on our promises and producing quality results.

Accountable partner you can trust. More than just a vendor, we are a partner who stands behind the quality of our products and forms lasting relationships with our customers. In fact, 80% of them come back to buy from CCS again.

CCS Cooling Tower Capacities

The CCS 3000XLF fiberglass crossflow field-erected cooling tower is the ideal choice for projects when 1,000 - 3,000 tons per cell is required.

<table>
<thead>
<tr>
<th>Tons Per Cell</th>
<th>300</th>
<th>1000</th>
<th>2000</th>
<th>3000</th>
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</thead>
<tbody>
<tr>
<td>Counterflow</td>
<td>PermaLite®</td>
<td>Phoenix®</td>
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<tr>
<td>Crossflow</td>
<td>3000XLF™</td>
<td>Titan™</td>
<td></td>
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  - Our patented two- and three-bolt structural connections are stable without spacers or torquing, and we anchor every column to the basin.
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- Accountable partner you can trust
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Engineered and Designed for Superior Quality and Reliability

For building trades and light industrial applications where extended equipment life is required, the 3000XLF fiberglass crossflow field-erected cooling tower provides superior structure, the ultimate in corrosion protection and optimal performance.

Optimized Design
- All-fiber glass structure can be designed for specific seismic and wind conditions per the International Building Code or ASCE-7
- Engineered to minimize structural air restriction
- Motor located outside saturated airstream
- Positive shutoff butterfly valves for optimal flow control
- Superior crossflow fill media
- Bottom-supported crossflow fill
- Patented hot water distribution system
- Increased safety with FRP distribution cover at same elevation as fan deck
- Designed to outline the facility it serves

Non-Corrosive Construction Components
- Fiberglass structural components
- Rigid fiberglass fan deck and fan stacks
- FRP blade louvers standard
- Fiberglass hot water basin and basin cover
- Type 304 stainless steel hardware
- 100% locknuts on all structure hardware

Performance Benefits
- Aesthetically pleasing design
- Energy efficient
- Quiet operation
- Reliable year-round performance
- Extended service life
- Environmentally friendly

1. Butterfly Control Valves
   - More positive balancing of distribution
   - True flow control valve superior to dump valve

2. Motor
   - 50 HP to 150 HP
   - Located outside airstream
   - Inverter duty compatible

3. Hot Water Basin Cover
   - Removable
   - Same elevation as fan deck, eliminating a trip hazard

4. FRP Fan Stack
   - Includes view port and access door

5. FRP Manual Adjusted Pitch Fan
   - Moment balanced at factory
   - Corrosion resistant

6. Gear Drive
   - Right-angle gear
   - Epoxy coated
   - Vibration and oil level cut-off switches pre-mounted

7. HDG Steel Support/Distribution Header
   - Uniform distribution of hot water over nozzles
   - FRP cover in easy-to-remove sections
   - Low pump head, gravity flow
   - Distribution basin
   - Large orifice target nozzles

8. Patented Hot Water Distribution System
   - Uniform distribution of hot water over nozzles
   - FRP cover in easy-to-remove sections
   - Low pump head, gravity flow
   - Distribution basin
   - Large orifice target nozzles

9. Distribution Header Inlet
   - Single-inlet distribution system
   - One inlet per cell

10. FRP Handrails
    - OSHA compliant

11. FRP Casing
    - 12 oz. or greater fire retardant casing
    - UV resistant
    - Corrosion resistant

12. FRP Access Door
    - Fewer structural obstructions
    - Facilitates maintenance

13. Column Anchors
    - Every column anchored to basin
    - Stainless steel
    - 316 stainless steel (optional)

14. FRP Fill Pack Supports
    - Bottom-supported, facilitating installation and maintenance
    - Superior to hanging fill systems
    - Integrated drift eliminators (standard)
    - Elevated above the cold water basin for easy maintenance

15. PVC Fill Pack
    - Bottom-supported, facilitating installation and maintenance
    - Superior to hanging fill systems
    - Integrated drift eliminators (standard)
    - Elevated above the cold water basin for easy maintenance

16. FRP Blade Louvers (Optional)
Engineered and Designed for Superior Quality and Reliability

For building trades and light industrial applications where extended equipment life is required, the 3000XLF fiberglass crossflow field-erected cooling tower provides superior structure, the ultimate in corrosion protection and optimal performance.

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This information is intended for guidelines and preliminary information only. Do not use for construction.
Purchaser to design and furnish concrete basin, sumps, drains, overflows, water makeup, etc.
Sleeved anchor bolts are to be 3/4" diameter with 2" projection. Each bolt to have 1 1/2" minimum usable thread, one washer, and one nut.
Design basin depth is 1'–4". Deeper basins require piers provided by Others.
Adequate clearance for construction and air supply must be maintained around the tower. Consult your CCS representative for assistance.

<table>
<thead>
<tr>
<th>Catalog Model No.</th>
<th>Nominal Tons</th>
<th>Motor HP</th>
<th>Weights</th>
<th>Dimensions</th>
<th>No. of Bays</th>
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</table>

1. Based on 3 GPM per ton at 90°F-80°F-70°F, ASL.
2. Weights and loads are in pounds. Weights are for cooling tower only, on concrete basin (supplied by Others).
3. All dimensions are nominal.
4. From top of basin curb to top of fan stack.
This information is intended for guidelines and preliminary information only. Do not use for construction. Purchaser to design and furnish concrete basin, sumps, drains, overflows, water makeup, etc. Sleeved anchor bolts are to be 3/4” diameter with 2” projection. Each bolt to have 11/2” minimum usable thread, one washer, and one nut.

Design basin depth is 1’–4”. Deeper basins require piers provided by Others. Adequate clearance for construction and air supply must be maintained around the tower. Consult your CCS representative for assistance.

<table>
<thead>
<tr>
<th>Catalog Model No.</th>
<th>Nominal Tons</th>
<th>Motor HP</th>
<th>Weights1</th>
<th>Dimensions2</th>
<th>No. of Bays</th>
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<tr>
<td>XLF1222-60</td>
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<td>15,214</td>
<td>22,104</td>
<td>12’–5”–4”</td>
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<td>13,214</td>
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<tr>
<td>XLF1424-50</td>
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<td>13,214</td>
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1. Based on 3 GPM per ton at 95°F-85°F-78°F, ASL.
2. Weights and loads are in pounds. Weights are for cooling tower only, on concrete basin (supplied by Others).
3. All dimensions are nominal.
4. From top of basin curb to top of fan stack.
3000XLF on FRP or Stainless Steel Basin

Steel Grillage (by Others)

Minimum Operating Water Level

This information is intended for guidelines and preliminary information only. Do not use for construction.
Purchaser to design, furnish, and install grillage.
Supporting members must be level and flush at top. Maximum beam deflection is 1/240 span or 1/2", whichever is less.
For recommendations for sump design, size, and location, consult your CCS representative.
Adequate clearance for construction and air supply must be maintained around the tower. Consult your CCS representative for assistance.

### Catalog Model No. | Nominal Tons | Motor HP | Weights | Dimensions
<table>
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<tr>
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</table>

1. Based on 3 GPM per ton at 95°F-85°F-78°F, ASL.
2. Operating and maximum overflow weights include tower, basin, and water. Weights and loads are in pounds.
3. Basin weight when water reaches normal operating level.
4. Basin weight when water reaches maximum overflow level.
5. All dimensions are nominal.
6. From top of basin curb to top of fan stack.
This information is intended for guidelines and preliminary information only. Do not use for construction.

Purchaser to design, furnish, and install grillage.

Supporting members must be level and flush at top. Maximum beam deflection is 1/240 span or 1/2", whichever is less.

For recommendations for sump design, size, and location, consult your CCS representative.

Adequate clearance for construction and air supply must be maintained around the tower. Consult your CCS representative for assistance.

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<tr>
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<th>Nominal Tons1</th>
<th>Motor HP</th>
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<th>Dimensions3</th>
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</table>

1. Based on 3 GPM per ton at 95°F-85°F-78°F, ASL.
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3. Basin weight when water reaches normal operating level.
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5. All dimensions are nominal.
6. From top of basin curb to top of fan stack.

---

**3000XLF on FRP or Stainless Steel Basin**

---

**Steel Grillage (by Others)**

- Length x Number of Cells (L)
- Cell Length (L)
- Multi-Cells
- Air Inlet
- Cased End Wall
- Basin Support Steel Grillage (by Others)

**Minimum Operating Water Level**

- Top of Basin Curb
- Minimum Operating Water Level

---

**Basin Support Steel Grillage (by Others)**

- 1 Sump per Cell
- 1 Sump per Cell

---

**CCS 3000XLF™ Engineering Data**
The CCS 3000XLF Fiberglass Crossflow Field-Erected Cooling Tower is typically an ideal choice for the building trades and industrial market segments when requiring 1,000 - 3,000 tons per cell. Consider the following parameters when planning your project:

### Project Design Criteria

- **No. of Towers**
- **No. of Cells**

#### APPLICATION
- Commercial
- Industrial

#### TOWER TYPE
- Crossflow

#### CELL ARRANGEMENT
- In-Line
- Double

#### AIR INLET TYPE
- Individual

#### TOWER MATERIAL
- Fiberglass
- Concrete
- Stainless Steel

#### BASIN MATERIAL
- Fiberglass

#### OWNER PRIORITY
- Max GPM
- Min CWT
- Max WBT

#### MAXIMUM TOWER AREA SPACE PROVIDED
- Length _____ ft x Width _____ ft = _____ ft²

#### MAXIMUM BASIN AREA
- Length _____ ft x Width _____ ft = _____ ft²

#### DESIGN CONDITIONS
- **Total GPM**
  - HWT _____ °F
  - CWT _____ °F
  - WBT _____ °F

#### TOWER LOCATION
- On grade
- Rooftop

#### ACCESS
- Number of Ladder(s) _____
- Number of Staircase(s) _____

#### Special Design Considerations
- **HEIGHT LIMITATION FROM GRADE**
- **SOUND**
- **WATER QUALITY**
  - _____ ft
  - _____ dBA
  - _____ ft from tower
  - _____ ppm suspended solids in circulating water
The CCS 3000XLF Fiberglass Crossflow Field-Erected Cooling Tower is typically an ideal choice for the building trades and industrial market segments when requiring 1,000 - 3,000 tons per cell. Consider the following parameters when planning your project:

### CCS 3000XLF**™ Market Segments**

The CCS 3000XLF Fiberglass Crossflow Field-Erected Cooling Tower supports commercial, industrial and process mission-critical facilities when superior quality and reliability count.

### CCS 3000XLF**™ Design Criteria**

<table>
<thead>
<tr>
<th>Project Design Criteria</th>
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<tbody>
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Composite Cooling Solutions (CCS) is a custom cooling tower solutions provider specializing in the design and build of field-erected fiberglass and concrete cooling towers. Our exclusive tower structure is unlike any other on the market — using custom-engineered components and a flexible, open-frame design to enable faster and safer project execution and lower costs over the life of the tower. From our founding leaders who pioneered the cooling tower industry to our experienced and responsive teams, you can rely on CCS to deliver a lasting solution for your cooling needs.

"We do things differently and it makes all the difference for you."