



3000XLFTM

Fiberglass Crossflow

Field-Erected Cooling Towers

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

At CCS

we have designed an e
on the market — provi

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 2-4x 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.

CCS 3000XLF fiberglass crossflow field-erected cooling towers serve mission-critical facilities, such as universities, hospitals and data centers. This two-cell CCS 3000XLF supports a data center for one of the nation's preeminent insurance companies.

Optimal Project Execution

ThermaFit™ for optimal design

CCS' ThermaFit 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.

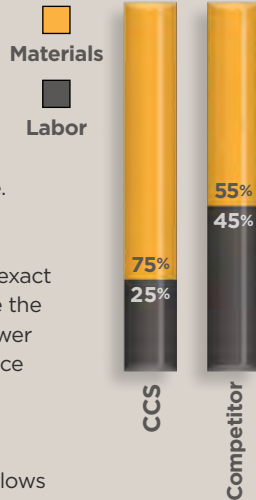


exclusive tower structure that is unlike any other offering real and lasting advantages for you.

Lower Lifecycle Costs

Better material-to-labor cost ratio

Our exclusive tower structure and streamlined build process typically equate 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.

Tons Per Cell	300	1000	2000	3000	4000
Counterflow	PermaLite™	Phoenix®			
Crossflow		3000XLF™		Titan™	

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-fiberglass 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 shut-off 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 outlive 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



A. All CCS 3000XLF columns are secured to the basin with stainless steel anchor shoes. Structure uses CCS' patented two- and three-bolt connections. Fill and drift eliminators are bottom-supported with FRP supports.



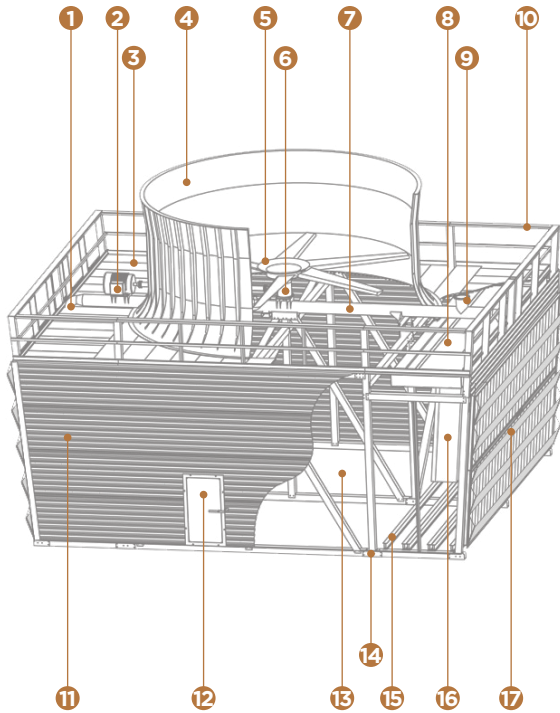
B. This condenser water return line extends over the FRP handrails. It is supported by the 3000XLF's 6"x6" pultruded FRP column which is anchored to the foundation. This minimizes requirements for additional lateral pipe support.



C. Butterfly valves are true flow control valves - superior to dump valves used by competitors, and allow more positive balancing of distribution system. Removable hot water basin cover is at same elevation as fan deck, eliminating a trip hazard.

D. CCS' patented hot water distribution system provides uniform flow of hot water over target nozzles.





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 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

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

13. Open Plenum Area

- Fewer structural obstructions
- Facilitates maintenance

14. Column Anchors

- Every column anchored to basin
- Stainless steel
- 316 stainless steel (optional)

15. FRP Fill Pack Supports

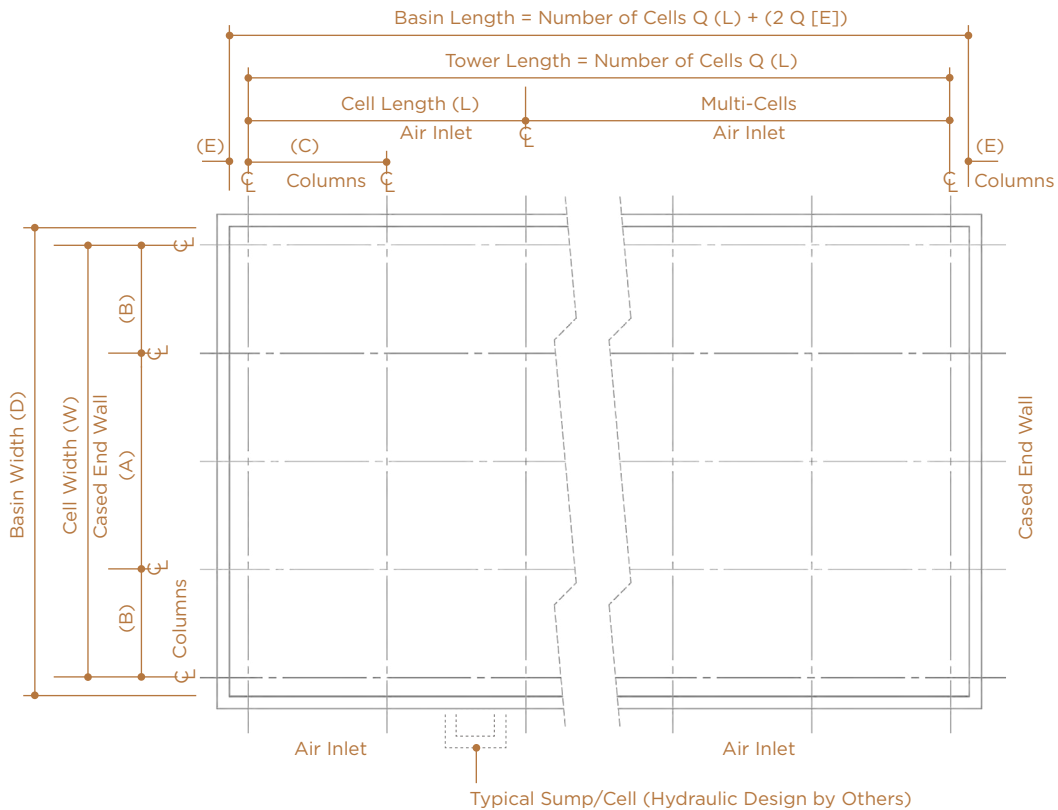
16. PVC Fill Pack

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

17. FRP Blade Louvers (Optional)

3000XLF on Concrete Basin

Concrete Basin (by Others)



Minimum Operating Water Level



This information is intended for guidelines and preliminary information only. Do not use for construction.

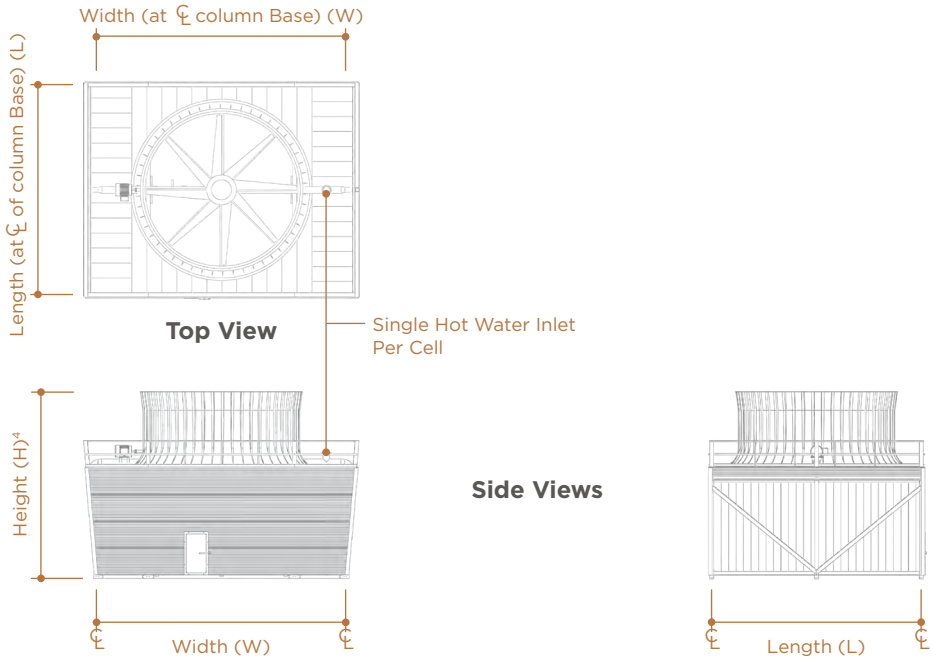
Purchaser to design and furnish concrete basin, sumps, drains, overflows, water makeup, etc.

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.

CCS 3000XLF™ Engineering Data

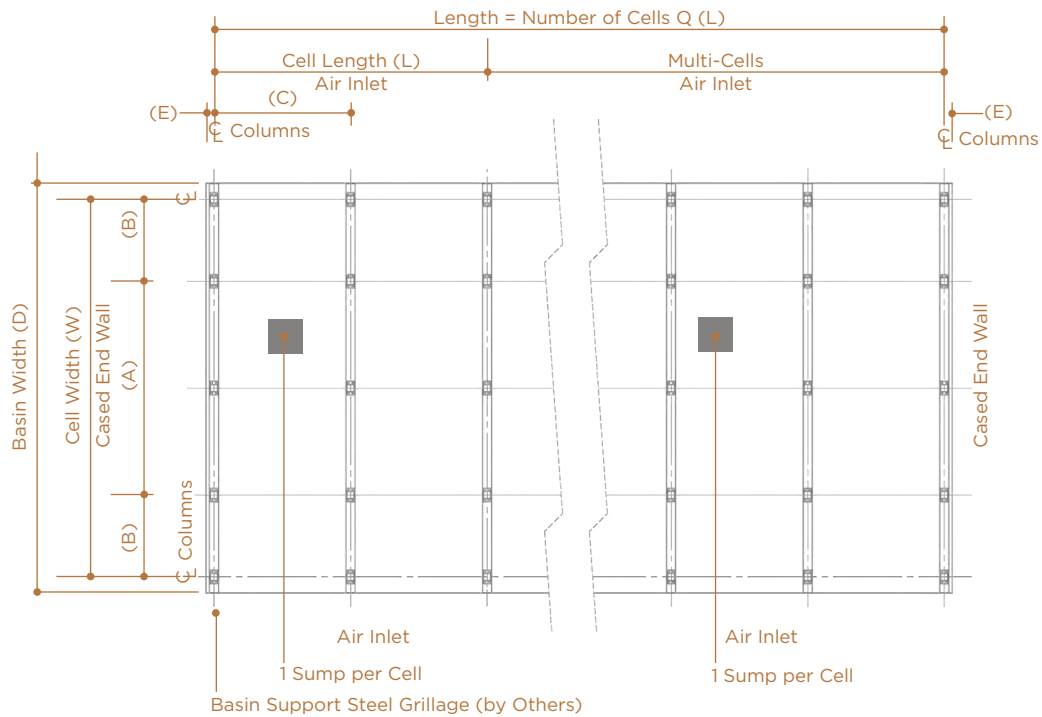


Catalog Model No.	Nominal Tons ¹	Motor HP	Weights ²		Dimensions ³								No. of Bays
			Shipping	Operating	L	W	H ⁴	A	B	C	D	E	
XLF1222-60	930	60	13,214	22,104	12'	22'	25'-5"	12'-6"	4'-9"	N/A	24'	9"	1
XLF1222-75	1000	75											
XLF1424-50	1023	50	16,397	26,768	14'	24'	25'-5"	14'-6"	4'-9"	N/A	26'	9"	1
XLF1424-60	1075	60											
XLF1424-75	1150	75											
XLF1424-100	1250	100											
XLF1629-75	1345	75	23,306	39,664	16'	29'	23'-11"	15'-6"	6'-9"	8'-0"	31'	9"	2
XLF1629-100	1465	100											
XLF1830-75	1474	75	26,849	45,252	18'	30'	23'-11"	16'-6"	6'-9"	9'-0"	32'	9"	2
XLF1830-100	1605	100											
XLF2031-75	1597	75	30,532	50,980	20'	31'	23'-11"	17'-6"	6'-9"	10'-0"	33'	9"	2
XLF2031-100	1739	100											
XLF2433-75	1834	75	38,318	62,856	24'	33'	23'-11"	19'-6"	6'-9"	12'-0"	35'	9"	2
XLF2433-100	1998	100											
XLF2433-125	2134	125											
XLF2834-100	2234	100	45,685	74,312	28'	34'	23'-11"	20'-6"	6'-9"	14'-0"	36'	9"	2
XLF2834-125	2387	125											
XLF2834-150	2519	150											
XLF3238-100	2473	100	56,691	89,408	32'	38'	23'-11"	24'-6"	6'-9"	10'-8"	40'	9"	3
XLF3238-125	2643	125											
XLF3238-150	2800	150											

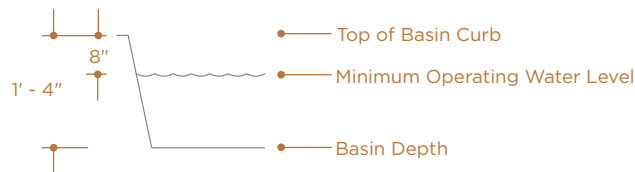
1. Based on 3 GPM per ton at 95°F-85°F-78°F, ASL.
 2. Weights and loads are in pounds. Weights are for cooling tower only, on concrete basin (supplied by Others).
 3. All dimensions are nominal.
 4. From top of basin curb to top of fan stack.

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.

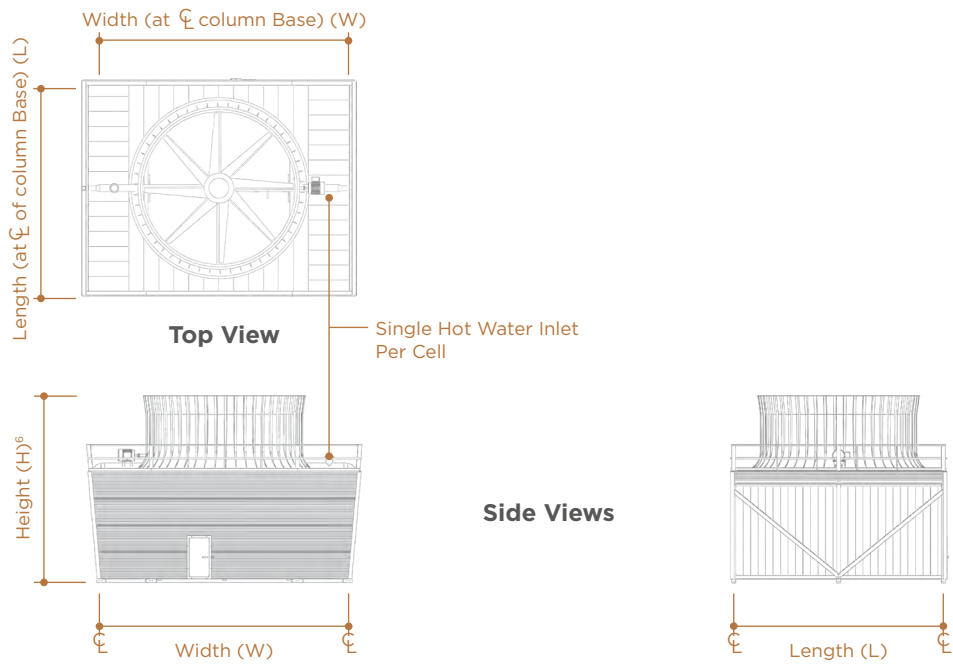
Purchaser to design, furnish, and install grillage.

Supporting members must be level and flush at top. Maximum beam deflection is $\frac{1}{240}$ span or $\frac{1}{2}$ ", 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.

CCS 3000XLF™ Engineering Data



Catalog Model No.	Nominal Tons ¹	Motor HP	Weights ²			Dimensions ⁵									No. of Bays
			Shipping	Normal Operating ³	Maximum Overflow ⁴	L	W	H ⁶	A	B	C	D		E	
												FRP	SS		
XLF1222-60	930	60	15,732	38,818	65,985	12'	22'	25'-4"	12'-6"	4'-9"	N/A	26'	24'	9"	1
XLF1222-75	1000	75													
XLF1424-50	1023	50	19,443	47,454	83,980	14'	24'	25'-4"	14'-6"	4'-9"	N/A	28'	26'	9"	1
XLF1424-60	1075	60													
XLF1424-75	1150	75													
XLF1424-100	1250	100													
XLF1629-75	1345	75	27,261	67,182	108,240	16'	29'	23'-10"	15'-6"	6'-9"	8'-0"	33'	31'	9"	2
XLF1629-100	1465	100													
XLF1830-75	1474	75	31,335	76,870	125,970	18'	30'	23'-10"	16'-6"	6'-9"	9'-0"	34'	32'	9"	2
XLF1830-100	1605	100													
XLF2031-75	1597	75	35,571	86,889	144,635	20'	31'	23'-10"	17'-6"	6'-9"	10'-0"	35'	33'	9"	2
XLF2031-100	1739	100													
XLF2433-75	1834	75	44,531	107,919	184,760	24'	33'	23'-10"	19'-6"	6'-9"	12'-0"	37'	35'	9"	2
XLF2433-100	1998	100													
XLF2433-125	2134	125													
XLF2834-100	2234	100	52,982	127,893	222,085	28'	34'	23'-10"	20'-6"	6'-9"	14'-0"	38'	36'	9"	2
XLF2834-125	2387	125													
XLF2834-150	2519	150													
XLF3238-100	2473	100	65,729	156,657	283,670	32'	38'	23'-10"	24'-6"	6'-9"	10'-8"	42'	40'	9"	3
XLF3238-125	2643	125													
XLF3238-150	2800	150													

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.

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.



Clockwise from top left:

*Data Center - Tampa, FL
Medical Center - Indianapolis, IN
Office Building - Fort Worth, TX
Process Facility - Tampa, FL
College Campus - San Angelo, TX
University Campus - Tulsa, OK*

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

	TIME REQUIREMENTS
Project Name <input style="width: 90%;" type="text"/>	Budget Workup Needed <input style="width: 90%;" type="text"/>
City <input style="width: 90%;" type="text"/>	Projected RFP Bid <input style="width: 90%;" type="text"/>
Engineering Firm <input style="width: 90%;" type="text"/>	Pre-bid Meeting <input style="width: 90%;" type="text"/>
	Projected Start <input style="width: 90%;" type="text"/>
	Projected Completion <input style="width: 90%;" type="text"/>
ENGINEERING CONTRACT	
Name <input style="width: 90%;" type="text"/>	YES NO
Phone <input style="width: 90%;" type="text"/>	Site Photographs Available <input type="checkbox"/> <input type="checkbox"/>
Email <input style="width: 90%;" type="text"/>	Project Drawings Available <input type="checkbox"/> <input type="checkbox"/>
	Project Specifications Available <input type="checkbox"/> <input type="checkbox"/>
	Load Drawing Required <input type="checkbox"/> <input type="checkbox"/>
	Proposal Drawings Required <input type="checkbox"/> <input type="checkbox"/>
	Proposal Specifications Required <input type="checkbox"/> <input type="checkbox"/>

Project Design Criteria

No. of Towers <input style="width: 80%;" type="text"/>	No. of Cells <input style="width: 80%;" type="text"/>		
APPLICATION	TOWER TYPE	CELL ARRANGEMENT	AIR INLET TYPE
<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Crossflow	<input type="checkbox"/> In-Line	<input checked="" type="checkbox"/> Double
<input type="checkbox"/> Industrial		<input type="checkbox"/> Individual	
TOWER MATERIAL	BASIN MATERIAL	OWNER PRIORITY	
<input checked="" type="checkbox"/> Fiberglass	<input type="checkbox"/> Concrete	<input type="checkbox"/> Max GPM	
	<input type="checkbox"/> Fiberglass	<input type="checkbox"/> Min CWT	
	<input type="checkbox"/> Stainless Steel	<input type="checkbox"/> Max WBT	
DESIGN CONDITIONS			
Total GPM <input style="width: 80%;" type="text"/>			
HWT <input style="width: 80%;" type="text"/> °F			
CWT <input style="width: 80%;" type="text"/> °F			
WBT <input style="width: 80%;" type="text"/> °F			
TOWER LOCATION			
<input type="checkbox"/> On grade <input type="checkbox"/> Rooftop			
Number of stories <input style="width: 80%;" type="text"/>		Height above roof <input style="width: 80%;" type="text"/> ft	
ACCESS			
Number of Ladder(s) <input style="width: 80%;" type="text"/>		Number of Staircase(s) <input style="width: 80%;" type="text"/>	

Special Design Considerations

HEIGHT LIMITATION FROM GRADE	SOUND	WATER QUALITY
<input style="width: 90%;" type="text"/> ft	<input style="width: 90%;" type="text"/> dBa <input style="width: 90%;" type="text"/> ft from tower	<input style="width: 90%;" type="text"/> ppm suspended solids in circulating water

CCS 3000XLF™ Fiberglass Crossflow Field-Erected Cooling Towers

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.™



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Front cover: This single-cell 3000XLF fiberglass crossflow cooling tower serves a community college campus.

Composite Cooling Solutions' cooling towers (or parts thereof) are covered and protected by one or more of the following United States Patents (and other pending U.S. patent applications): U.S. Patent No. 7,257,734, U.S. Patent No. 7,607,646, U.S. Patent No. 7,997,562, U.S. Patent No. 8,376,323 and U.S. Patent No. 8,602,397



ISO 9001:2008