



Series 5000 Industrial Modular Cooling Tower

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Highest Reliability, Easiest Maintenance The Series 5000 Industrial Grade Modular Cooling Tower provides superior performance with BAC's patent pending ENDURAFLOW™ Heat Transfer System for dirty water applications. The Series 5000 also offers the most corrosion resistant materials package, including EVERTOUGH™ Construction, combined with the most reliable drive options, including the ENDURADRIVE™ Fan System.



BAC's Series 5000 Industrial Modular Cooling Tower: Fast, Modular Installation

- Full Tilt Operation Without A Clog
- Dirty Water Applications
- Highest Reliability
- Easiest Inspection, Maintenance, and Cleaning
- Modular Configuration



Series 5000 Benefits

> Industrial Grade Construction

- ▶ EVERTOUGH™ construction (option)
 - TriArmor® Corrosion Protection System on Cold Water Basin
 - Thermosetting Hybrid Polymer on Structure
 - Fiberglass Reinforced Polyester Hot Water Basins
- ▶ A custom mix of component materials
 - Thermosetting Hybrid Polymer Coated Construction
 - G-235 Galvanized Steel Construction
 - Stainless Steel Construction

> Reliable Year-Round Operation

- ▶ BALTDRIIVE® Power Train Fan System
- ▶ Optional ENDURADRIVE™ Fan System backed by a 7 year warranty
- ▶ Superior winter operating performance
- ▶ Optimized louver design reduces splash out compared to bolt-on designs
- ▶ Meets wind and seismic requirements of the International Building Code (IBC)

> Installation Flexibility

- ▶ Basinless design allows placement over existing concrete sumps
- ▶ Modular Configuration beats installation time of field-erected units
- ▶ Replaces counterflow equipment with the improved access and service features of a crossflow design



Series 5000 Cooling Tower

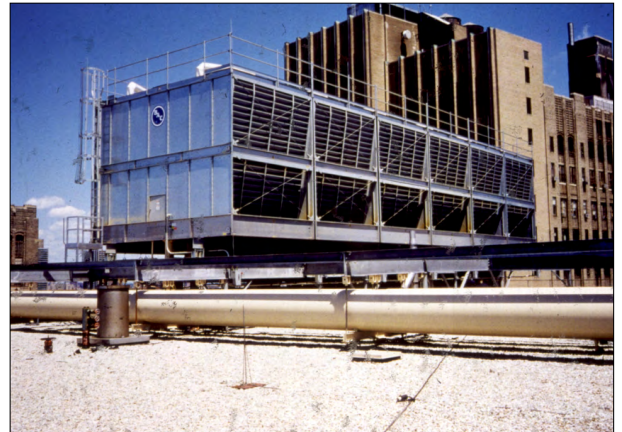


Series 5000 Cooling Tower



> Lowest Maintenance Costs

- ▶ Fastest access to:
 - Cold water basin
 - Hot water basin during operation
 - Drive system
- ▶ Patented hygienic cold water basin reduces maintenance
- ▶ Factory assembled access options available for ease of maintenance
- ▶ ENDURADRIVE™ Fan System offers the lowest drive maintenance in the industry (option)
- ▶ ENDURAFLOW™ Heat Transfer System with line-of-sight cleanability
- ▶ Large Plenum allows for easy maintenance
- ▶ Large doors allow easy access
- ▶ Full coverage internal platform for unparalleled ease of maintenance
- ▶ Internal Drift Eliminators are service-friendly
- ▶ External Louvers allow easy inspection of ENDURAFLOW™ Heat Transfer System

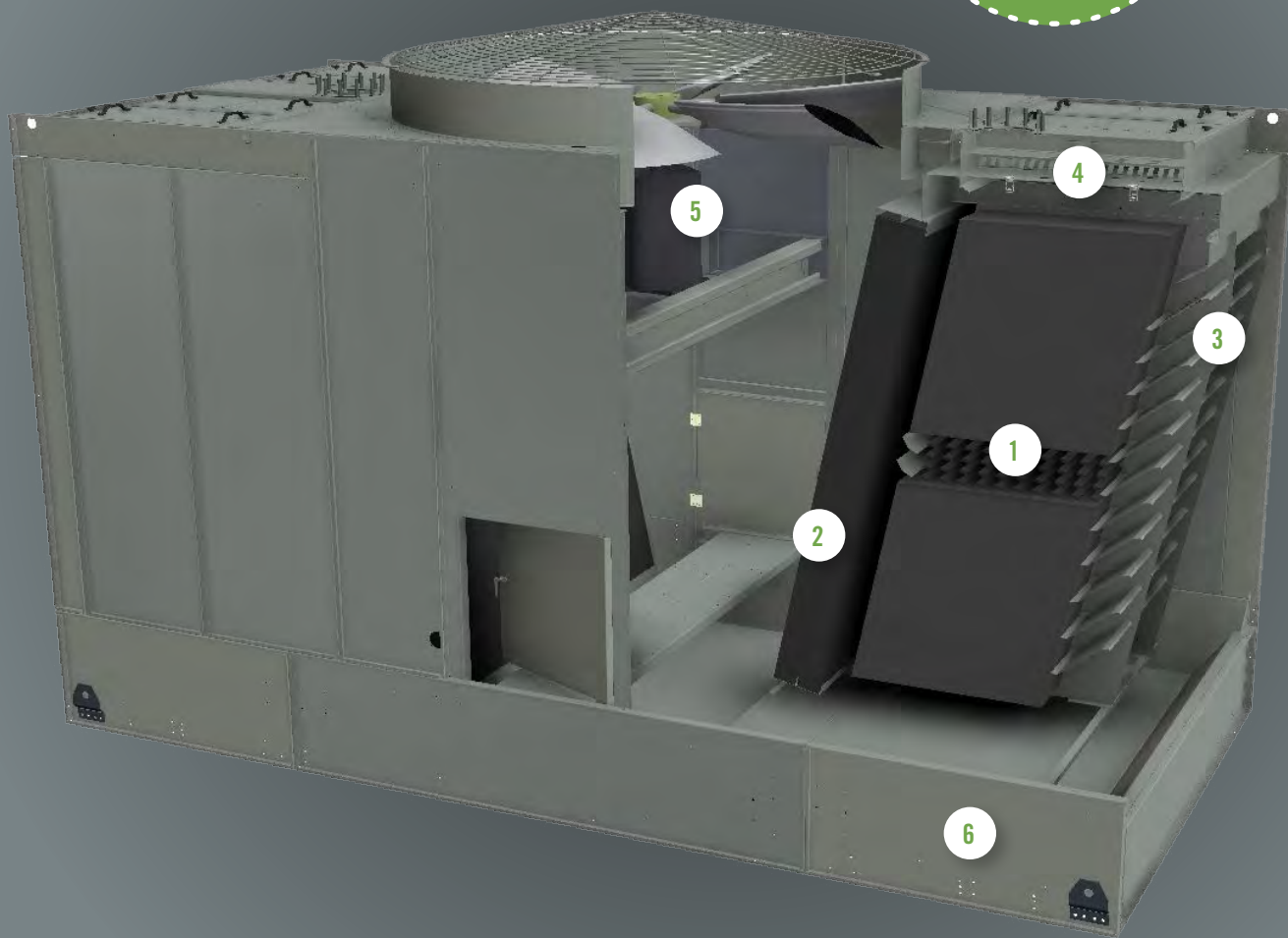


Series 5000 Cooling Tower



Series 5000 Cooling Tower

Series 5000 Construction Options



1 ENDURAFLOW™ Heat Transfer System

- ▶ Superior low-clog performance
- ▶ Allows for easiest cleaning and reduces downtime
- ▶ Highest thermal performance
- ▶ Straight through visibility allows for fastest inspections
- ▶ Internal baffles

2 Internal Drift Eliminators

- ▶ Service-friendly, easy to remove
- ▶ Reduces maintenance and service time

3 External Louvers

- ▶ Requires nearly zero maintenance
- ▶ Allows for easy visual inspection of ENDURAFLOW™ Heat Transfer System

4 Gravity Fiberglass Reinforced Polyester Hot Water Basins

- ▶ Increased reliability and lifespan
- ▶ Easy accessibility and serviceability of spray water system

5 ENDURADRIVE™ Fan System

- ▶ The only variable speed direct drive solution for modular cooling towers
- ▶ Reduces maintenance by 90%
- ▶ 100% reliability on transmission components
- ▶ Industry-best 7-year motor warranty

6 TriArmor® Corrosion Protection System

- ▶ Three layers of corrosion-resistant protection
- ▶ Leak tested for reliability
- ▶ 5-year leak and corrosion basin warranty
- ▶

Series 5000 Custom Features & Options

Materials of Construction

BAC provides the widest variety of material of construction options in the industry and has the ability to provide a solution to meet all conditions and budgets. Standard features such as the TriArmor® Corrosion Protection System and EVERTOUGH™ Construction provide superior corrosion resistance and durability, maximizing reliability.



EVERTOUGH™ CONSTRUCTION (OPTION)

Designed for the most adverse conditions, EVERTOUGH™ Construction includes the most corrosion-resistant option on every component.

- TriArmor® Corrosion Protection System basin
- Thermosetting hybrid polymer structure
- Fiberglass reinforced polyester (FRP) hot water basins
- Remaining components created from a custom mix of materials
- Louver-to-LouverSM 5-year warranty
- 5-year leak and corrosion basin warranty



TRIARMOR® CORROSION PROTECTION SYSTEM (STANDARD)

Three layers of protection form a completely seamless cold water basin for the most leak-resistant and durable basin in the industry.

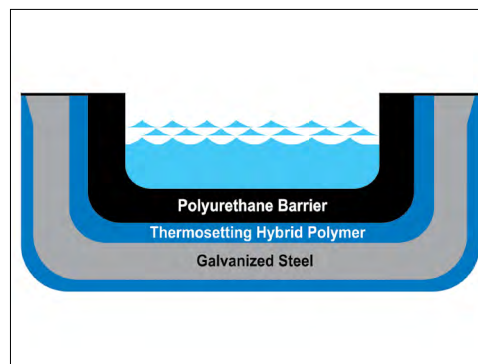
- Heavy gauge G-235 mill galvanized steel basin
- Thermosetting hybrid polymer fully encapsulates basin
- Polyurethane barrier on submerged surfaces
- Stainless steel construction on remainder of basin components
- 5-year leak and corrosion warranty on basin

WELDED STAINLESS STEEL COLD WATER BASIN

- Seams between panels inside the cold water basin are welded, minimizing susceptibility to leaks.
- Leak tested at the factory
- 5-year, leak-proof warranty.



Standard Construction Installation



TriArmor® Corrosion Protection System Triple Layer Protection of the Cold Water Basin



Application of TriArmor® Corrosion Protection System

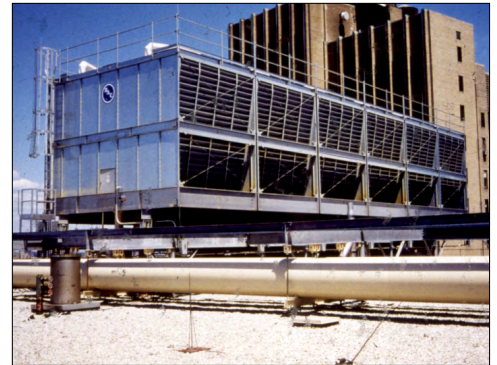


JE PREMIER SERIES® CONSTRUCTION

- All structural elements, casing panels, louvers, and the hot and cold water basins are constructed of stainless steel.
- Seams between panels inside the cold water basin are welded, minimizing susceptibility to leaks at basin seams.
- The basin is leak tested at the factory and welded seams are provided with a 5-year leak-proof warranty.
- Louver-to-LouverSM 5-year warranty

▶ STEEL CASING PANELS AND LOUVERS

Steel casing panels and louvers are available in G-235 mill galvanized steel, thermosetting hybrid polymer, and stainless steel.



EVERTOUGH™ Construction Installation

> Basinless Unit Construction



BASINLESS UNIT CONSTRUCTION (OPTION)

The basinless unit construction option enables Series 5000 Cooling Towers to be directly installed on new or existing cold water basins.

- Simplifies piping and pumping requirements
- Eliminates concern for basin corrosion and extends equipment life
- Provides the most cost-effective option to replace field-erected equipment



JE PREMIER SERIES® Construction



Basinless Construction



Welded Stainless Steel Cold Water Basin

Series 5000 Custom Features & Options

> Drive System Options

BAC cooling tower duty motors are specially designed for the harsh environment inside a cooling tower and have permanently lubricated bearings, drastically decreasing the maintenance requirement of the motor. BAC belt drive systems are the most maintenance-friendly drive systems on the market, including single nut adjustment to make belt tensioning simple.



STANDARD BALTIDRIVE® POWER TRAIN

The BALTIDRIVE® Power Train utilizes special corrosion resistant materials of construction and state-of-the-art technology to ensure ease of maintenance and reliable year-round performance.

- Powerband and two cast aluminum sheaves located at minimal shaft centerline distances, maximizing belt life.
- Requires only periodic inspection of components
- Single nut adjustments belt tensioning requires less downtime
- Suitable for VFD applications without optional accessories

▶ EXTENDED LUBRICATION LINES (OPTION)

Extended lubrication lines are available for lubrication of the fan shaft bearings. Fittings are located on the exterior casing panel next to the access door.



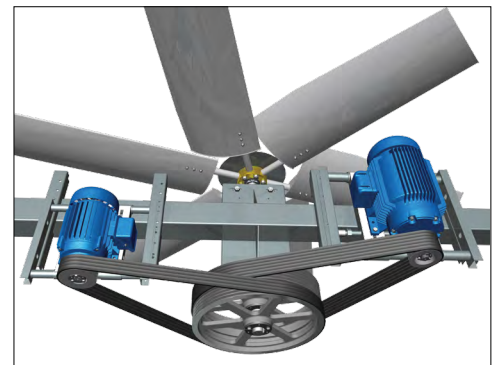
ENDURADRIVE™ FAN SYSTEM (OPTION)

The only variable speed direct drive solution for modular cooling towers.

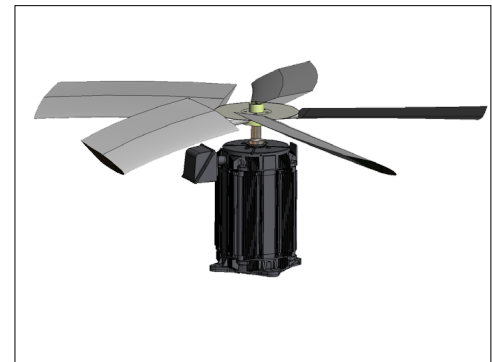
- Reduces drive maintenance by 90%
- 100% reliability on transmission components
- Industry best 7 year motor warranty and 5 year VFD limited warranty



BALTIDRIVE® Power Train Fan System



BALTIGUARD™ Fan System Provides Built in Redundancy



ENDURADRIVE™ Fan System





GEAR DRIVE SYSTEM, CLOSE-COUPLED MOTOR

(OPTION, STANDARD ON 55E-1222-14T AND 55E-1424-14T)

A gear drive system is available as a fan drive option on the Series 5000. Both the gear drive and couplings are selected with a 2.0 service factor. Gear construction includes a nickel-alloy steel shaft, casehardened gears, self lubrication, and a single piece, gray iron housing. This drive system ships completely installed and aligned.

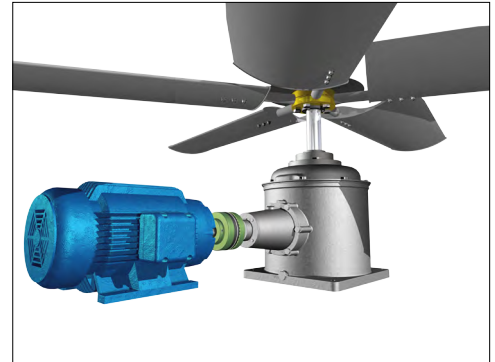
▶ GEAR DRIVE SYSTEM, EXTERNALLY MOUNTED MOTOR (OPTION)

A gear drive system with a TEFC motor mounted outside the airstream is also available on the Series 5000. A non-corrosive carbon-fiber composite drive shaft with stainless steel hubs is selected with a 2.0 service factor. The motor and drive shaft ship separately for easy field installation.

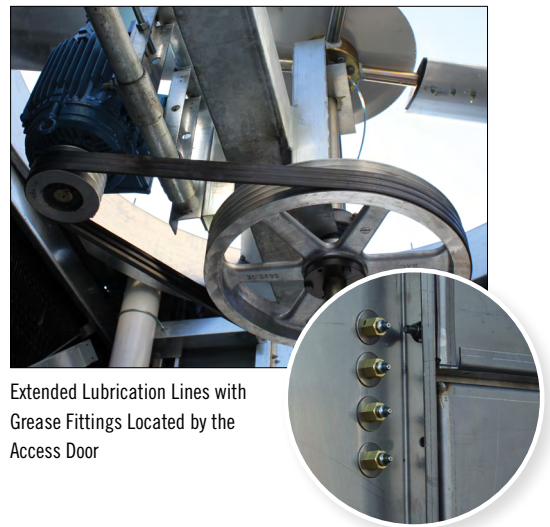


VIBRATION CUTOUT SWITCH (OPTION)

A factory mounted vibration cutout switch is available to effectively protect against rotating equipment failure. BAC can provide either a mechanical or solid-state electronic vibration cutout switch in a NEMA 4 enclosure to ensure reliable protection. Additional contacts can be provided on either switch type to activate an alarm. Remote reset capability is also available on either switch type.



BALTIguard PLUS™ Fan System
Used for VFD Applications



Extended Lubrication Lines with
Grease Fittings Located by the
Access Door



Vibration Cutout Switch

Series 5000 Custom Features & Options

> Cold Water Basin

The cooling tower water collects in the cold water basin which provides the required head pressure for the cooling system pump. The Series 5000 cold water basin includes BAC's patented hygienic cold water basin design. During operation, BAC's patented hygienic cold water basin helps eliminate any stagnant water zones, which are susceptible to biological growth.

▶ STANDARD MECHANICAL WATER LEVEL CONTROL

Mechanical make-up valves must operate continuously in the moist and turbulent environment existing within evaporative cooling equipment. Due to this environment, the operation of the valve must be simple, and the valve must be durable. BAC's high quality mechanical water level control assembly is standard with all units, and has been specially designed to provide the most reliable operation while being easy to maintain. This accessory is omitted for remote sump applications.

▶ SIDE OUTLET DEPRESSED SUMP BOX (OPTION)

A side outlet depressed sump box is available for field installation below the base of the tower. This option facilitates horizontal piping below the basin, and is a compact alternative to using an elbow in the piping arrangement, saving on both installation time and cost. The outlet connection is designed to mate with an ASME Class 150 flat face flange. See the "Connection Guide" on **page J176** for more information on standard and optional unit connection types.



Mechanical Water Level Control



BASIN HEATERS (OPTION)

Evaporative cooling equipment exposed to below freezing ambient temperatures require protection to prevent freezing of the water in the cold water basin when the unit is idle. Factory-installed electric immersion heaters, which maintain 40°F (4.4°C) water temperature, are a simple and inexpensive way of providing such protection.

▶ **LOW AND HIGH LEVEL ALARM FLOAT SWITCHES (OPTION)**

Low and high level alarm float switches are available to provide added control to your equipment operation. Level alarms can alert operators to an abnormal operating condition to ensure the highest system efficiency with minimal water usage.



Basin Heater

Series 5000 Custom Features & Options

> Multi-Cell Unit Options

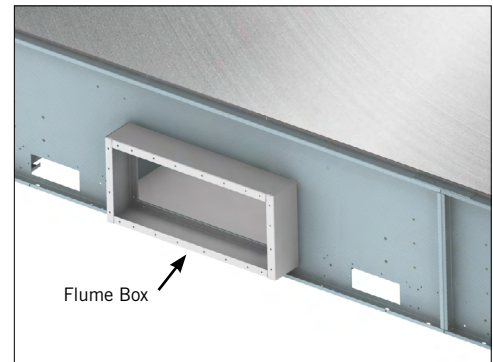
Special care must be taken for multi-cell installations to ensure balanced water levels in the cold water basins across cells. If measures are not put in place to ensure balanced basin water levels, a potential exists that one basin may overflow and dump water, while the water level in another tower goes low and requires make-up. This leads to unnecessary water waste. To prevent this from occurring, BAC provides two options for balancing water levels and recommends that the installation be designed to ensure balanced flows to and from each tower.

▶ FLUME BOX – STANDARD ON ALL MULTI-CELL UNITS

A flume box is provided as standard for multi-cell units to balance the water level in the cold water basins. See the “Connection Guide” on [page J176](#) for more information.

▶ EQUALIZER (OPTION)

Equalizer connections are available as an option for multi-cell cooling towers in lieu of a flume box. Use of an equalizer allows for easy isolation of a cell for winter operation, maintenance, or inspection while continuing system operation. See “Cooling Towers in Parallel” on [page J167](#) for more information.



Flume Box

> Water Distribution System

The Series 5000 Cooling Tower utilizes a low pump head gravity distribution system with large orifice non-clogging nozzles that requires less pump energy than a pressurized distribution system.

▶ STANDARD TOP INLET CONNECTIONS

The Series 5000 comes standard with top inlet connections to each of the hot water basins. Hot water basin covers matching the unit material of construction come in easy to handle sections for easy access and inspection of the distribution system. The use of gravity distribution minimizes pump head requirements and allows for maintenance during unit operation. BAC's patented non-clog nozzles ensure even flow over the fill area and are simple to remove for maintenance.

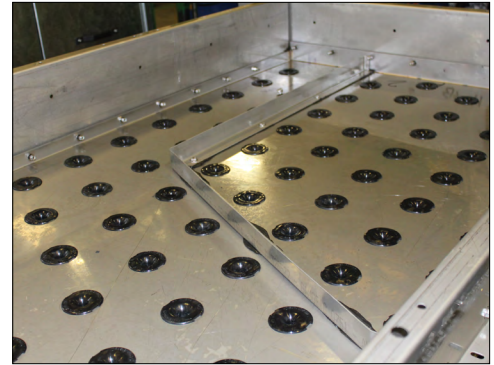


Top Inlet Connections



▶ **STANDARD WEIR DAMS**

Reducing water flow through a unit below the recommended level may potentially create uneven water distribution through the heat transfer section, causing scale build up, splash out/drift, and icing. To successfully modulate the water flow while avoiding potential complications, weir dams may be installed in the hot water basin. With a weir dam, the hot water basin can accommodate a flow range of 50% to 100% of the design flow.



Weir Dams



ENDURAFLOW™ Heat Transfer System

Superior low clog performance for dirty water applications, reduces fill replacement and downtime.

▶ **PATENT PENDING TECHNOLOGY**

Maximizes thermal performance in demanding power and process applications

▶ **ACCESSIBLE DESIGN**

Allows for cleaning while tower is in operation, reducing downtime

▶ **LINE OF SIGHT CLEANABILITY**

Reduces maintenance to ensure thermal performance and uptime



BACross® Fill Manufacturing

> Capacity Enhancement

The need to enhance the capacity of a unit may be necessary when layout is restricted or if capacity requirements have increased and exceed an existing unit's capabilities. By enhancing the capacity of a unit, it may be possible to use a smaller foot print while still meeting thermal requirements of the installation.

▶ **VELOCITY RECOVERY (VR) STACKS (OPTION)**

A VR stack is a conical fan cowl extension that reduces the discharge pressure the fan has to work against, allowing the fan to move more air for the same energy input. By moving more air through the same unit, the cooling capacity is increased without increasing horsepower or footprint. Effectively, the amount of energy required for each ton of cooling capacity is reduced. VR stacks are factory assembled, CTI certified, and can be configured during initial unit purchase to reduce energy requirements or through the aftermarket to increase capacity.



NOTE: For all fill options contact your local Representative.



Velocity Recovery (VR) Stacks

Series 5000 Custom Features & Options

> Shipping and Rigging

BAC units are factory-assembled to ensure uniform quality with minimum field assembly. Each unit has been designed with rigging and assembly in mind and includes features to minimize the number of tools required and installation time.

▶ **STANDARD RIGGING GUIDES**

Rigging guides allow for the upper and lower section of units with a two piece rig to align and engage. The guides ensure proper placement of the top section for multi-cell installations, making rigging much simpler and reducing the time required. This is especially critical during multi-cell installations when units are rigged side-by-side.

▶ **KNOCKDOWN UNITS (OPTION)**

Knockdown units are available for jobs where access to the cooling tower location is limited by elevators, doorways, or similar obstacles, where lifting methods impose very strict weight limits, or where the shipping cost of a fully assembled tower is excessive. Welded stainless steel cold water basins and TriArmor® Corrosion Protection System cold water basins are excluded.

> Access Options

BAC provides a broad offering of access options. Our evaporative equipment is designed to be the most easily maintained for sustaining capacity over a longer life. All BAC platforms and ladders are OSHA compliant to ensure personnel safety and code compliance.



Rigging Guides Ensure Alignment



Knockdown Unit Installation



MOTOR REMOVAL SYSTEM (OPTION)

All motor removal system options include modular davit arm(s) to facilitate motor replacement.



NOTE: Platforms, ladders, handrails, safety gates, and safety cages can be added at the time of order or as an aftermarket item.



EXTERNAL PLATFORMS AND LADDER PACKAGES (OPTION)

External platforms and ladder packages (now factory assembled prior to shipping) are available to provide safe access to key components of the unit for maintenance. Multiple configurations are available, including louver face platforms to gain access to the distribution system and motor access platforms for externally mounted gear drive motors.

▶ **ACCESS DOOR PLATFORM AND LADDER PACKAGES (OPTION)**

An access door platform is available to allow access to the unit when installed on elevated supports (these are now factory assembled prior to shipping). This option allows for safe access to the unit, as well as a working platform to stage tools for maintenance.

▶ **HANDRAIL PACKAGES (OPTION)**

Handrail packages are available to provide safe access to the top of the unit for maintenance to the distribution system. Fan deck extensions are available for passage around the fan on units designed with maximized fan diameters, Velocity Recovery (VR) Stacks, or discharge sound attenuation. The specially designed handrail packages are secured for compact shipping in the cold water basin to minimize shipping costs and are ready for field assembly.



INTERNAL WALKWAY (OPTION)

An internal walkway is available, allowing access to the spacious plenum area for maintenance and inspection of the cold water basin, make-up, fill, and drive system.

▶ **INTERNAL SERVICE PLATFORM AND LADDER PACKAGES (OPTION FOR TWO PIECE UNITS)**

A coverage service platform facilitates access to the fan drive components and inspection of upper level eliminators, baffles and heat transfer components. Designed to meet OSHA requirements, this platform provides ultimate ease of maintenance. An internal walkway is required with this package.



External Ladder and Platform



External Ladder, Safety Cage, and Handrail



Internal Ladder, Service Platform, and Walkway