

CASE STUDY

PRODUCT: COLMAC COIL ICH INDUSTRIAL AIR COOLER
STAINLESS STEEL TUBE/ALUMINUM FIN CONSTRUCTION

APPLICATION: CONTROLLED ATMOSPHERE (CA) APPLE STORAGE

(QTY) X MODEL: (14) X ICH20-454X-G-36-2-FLA-W-R-D
37.5 TR Each @ 12F TD, Flooded Ammonia, 78,400 CFM Each
(5) X 36" Diameter Cast Aluminum Fans @ 2 Hp.
1" Diameter Stainless Steel Tubes, Aluminum Fins, 4 Rows x 4 FPI
Water Defrost



DESCRIPTION:

The eastern side of Washington State along the Columbia River is home to the largest apple growing region in North America. Apple growers in Washington currently produce over 80 million x 42 pound boxes of apples each year.

The majority of the apple crop is stored in sophisticated controlled atmosphere (CA) cold storage warehouse facilities, most of which utilize ammonia refrigeration systems. As the oxygen content and temperature is reduced in the CA room, the respiration (ripening) rate of the fruit being stored falls to extremely low levels. This technique for storing apples is so successful that the fruit can be stored for an entire year (12 months) and come out of storage as crisp and flavorful as when it was picked.

Colmac Coil was contacted to design special air coolers for a large Washington State apple storage facility. The original project involved (14) x CA rooms, each room to contain approx. 2,000 bins (over 2 million pounds) of apples. Since the rooms are sealed after they are loaded with fruit then operated for several months with highly controlled atmosphere and temperature to maintain fruit quality, the customer asked Colmac Coil for a cooler design which would reduce the risk of ammonia leaks in the room to an absolute minimum. High pull-down cooling capacity, light weight and rapid defrost characteristics were also stated as design requirements.

Colmac Coil engineers determined that ICH coolers having stainless steel tubes and aluminum fins would satisfy all of the customer requirements. The coolers were built and installed and have operated highly successfully since that time. The project was so successful that the customer decided to expand the facility to add (20) more CA rooms. Each new room was designed around a Colmac Coil ICH cooler with stainless steel tubes and aluminum fins.

"The Heat Transfer Experts"