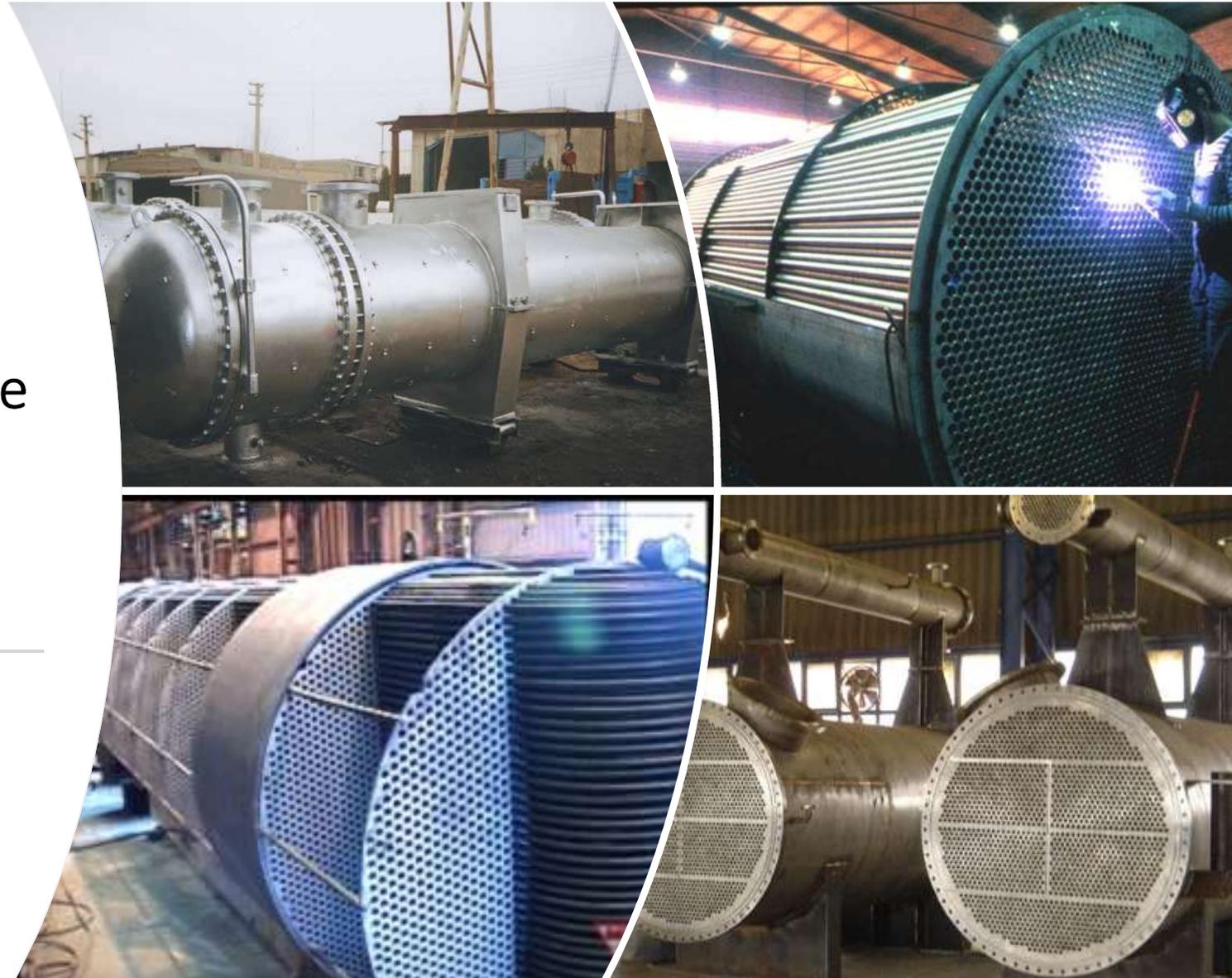


**CEN4415
PROCESS DESIGN I**

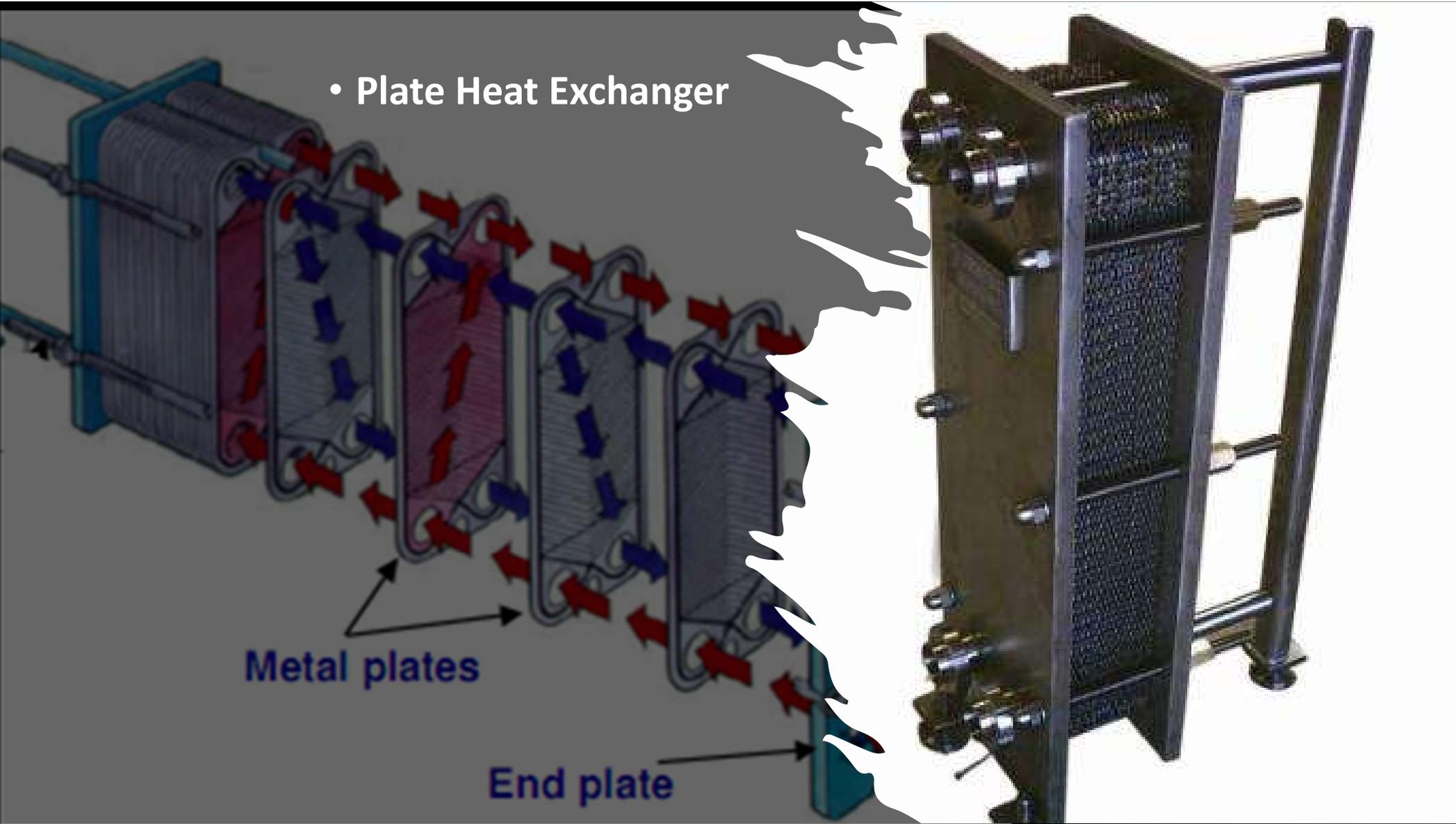
CLASSIFICATION ACCORDING TO THEIR TYPES

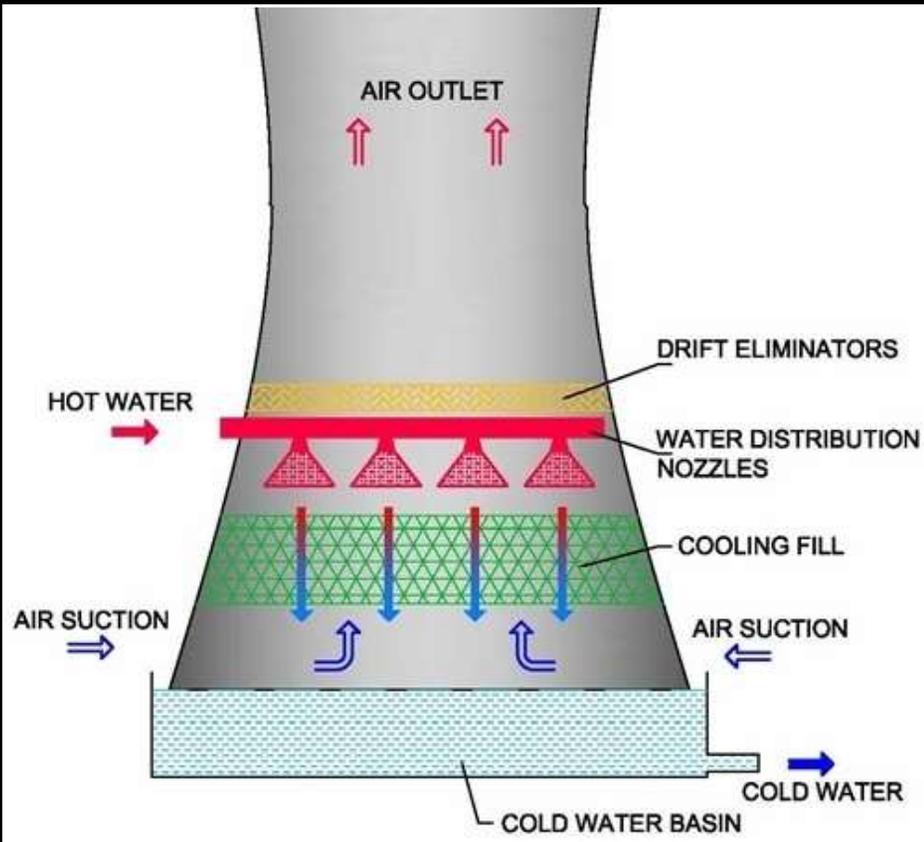
Heat Exchanger
Double Pipe Heat Exchanger
Shell and Tube Heat Exchanger
Plate Heat Exchanger
Air Cooled Heat Exchanger
Direct Contact Heat Exchanger

Among all, shell and tube heat exchangers are the most widely used ones in industrial processes.



- Plate Heat Exchanger

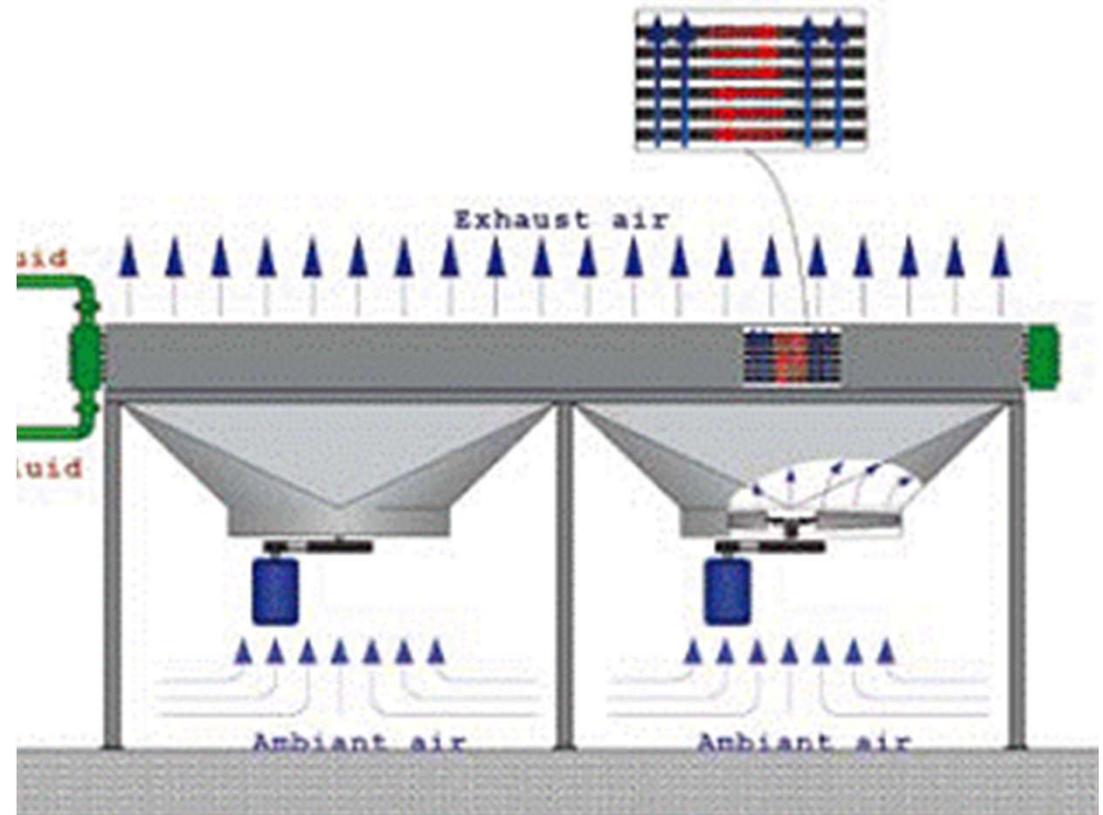




Direct Contact Heat Exchangers

- Air Cooled Heat Exchangers

Air Cooled Heat Exchanger Thermal Model



In the design of **heat exchangers**, the designer should reveal

- the **ideal conditions**
- the **actual conditions.**

REFERENCES

1. Sinnott, R.K. 1999, *Coulson's & Richardson's Chemical Engineering, Volume 6, Chemical Engineering Design*, ButterWorth Heinemann, Oxford.
2. Turton R., Bailie R.C., Whitin W.C., Shaeiwitz J.A. 1998, *Analysis, Synthesis and Design of Chemical Processes*, Prentice Hall, New Jersey.