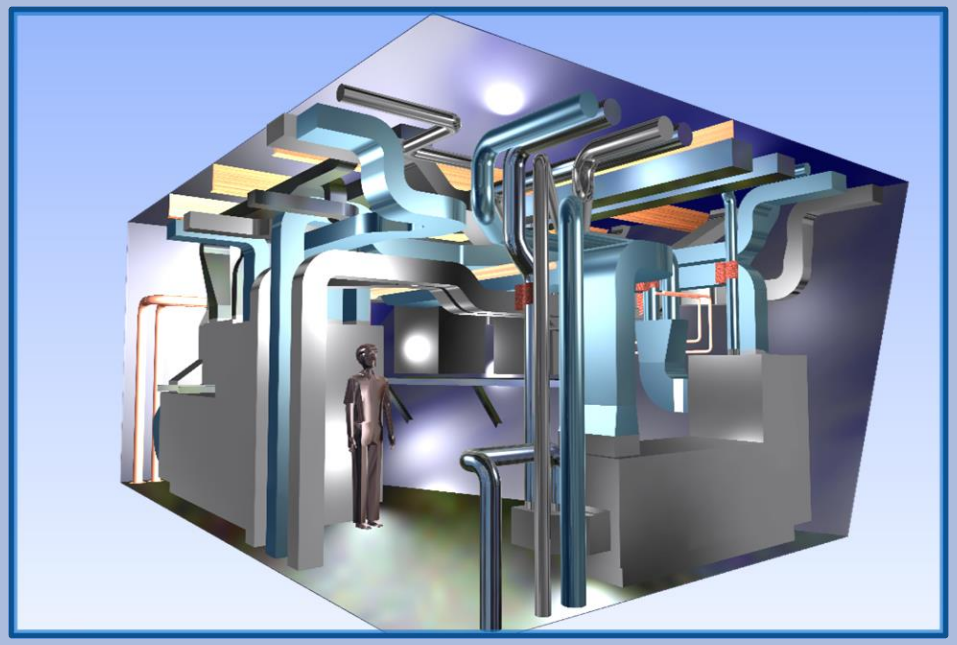
TKCE - TH. KARDARAS
Consulting Engineers



LAND, MARINE & OFFSHORE HVAC DESIGN *since 1984*

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Office Profile

TKCE Consulting Engineers (est.1984 as Anastasios Hadjimichalis Consulting Engineers) is a Design and Engineering office, specializing in HVAC systems of landsite, marine & offshore installations.

The office is currently manned with personnel specialized in HVAC installations:

- Marine engineers
- Mechanical engineers
- Electrical engineers
- Designers

Depending on projects' workload, external partners linked to the office (engineer/designers) are occupied.

The office is equipped with:

- Commercial software packages
- Scientific bibliography (ASHRAE, Carrier, etc)
- Standards & regulations (ISO, NORSOK, etc)
- Up to date specifications and catalogues of HVAC equipment.

Most of TKCE personnel have worked abroad on projects.

International experience has been a key factor in the success of projects undertaken so far.

Our engineers' experience in HVAC varies from 20 to 10 years.

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Activities

The activities of TKCE cover almost all stages of a HVAC project, either as main contractor or sub-contractor:

- Basic and detailed design
- Specification of materials
- Management & supervision of construction

HVAC Design

- Heating Cooling Load calculations
- Psychrometric calculations
- Airflow Lists
- Air Quantities (Color) Diagrams
- Process Flow Diagrams
- Single Line Diagrams
- D&IDs - P&IDs
- AC Piping Diagrams
- Coordination Drawings
- Machinery & equipment specifications
- Audit of design calculations and drawings

Project Management & Engineering

- Project Coordination
- Approval by authorities
- Machinery & equipment procurement
- Implementation of the design
- Balancing & Commissioning on site
- Factory Acceptance Tests

Power Distribution & Automation

- Electrical Panel Drawings
- Process Diagrams Electrical Diagrams
- Automation Diagrams
- Emergency Shutdown Design

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Tools

Software programs widely used:

Load calculation Psychrometrics Air quantities	HVAC design & modeling Materials Lists Sound & Pressure drop calculations	Electrical diagrams
• Carrier's HAP (Hourly Analysis Program). • IFC Builder • Cypetherm Loads	• AutoCAD (2D, 3D) • MagiCAD (ventilation & piping) • FisaDuct • Excel spreadsheets	• ePlan electric P8, version 2.1

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References

Today, TKCE has an outstanding track record in Landsite and Marine activities. Especially, in cruise, yacht and ferry sector, having consistently demonstrated its combination of reliable and punctual design, in tandem with the timely and professional management of follow-up build projects.

Landsite Activities

Cruise Ships

Navy, Other Vessels & Offshore Activities

Ferry Boats

Yachts



P&O CRUISES - M/V AURORA
(Meyer Werft – Germany, New Building 640)
Design of the A/C System for M.F.Z. 1, 4, 6 and 7.
Engineering management for the complete A/C System.
L.O.A.: 260 m - Passengers: 1975

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Landsite Activities

HOTEL GRAND BRETAGNE, Athens
Design of new HVAC System for an extensive conversion including:
Heating and cooling load calculations. Production of all drawings submitted to the authorities for approval. Production of all construction drawings (air ducts for supply and exhaust systems, chilled and hot water piping systems, machinery arrangement of an rooms. Calculation of technical characteristics and issuing of specifications for the air machinery and accessories. Supervision of contractors.



HOTEL SOFITEL
(Athens Airport – Greece)
Survey of the A/C System, balancing and commissioning of the system.



HOTEL ROYAL OLYMPIC
(Athens – Greece)
Survey of the A/C System, balancing and commissioning of the system.



Building of «OPAP» Organization
(Athens – Greece)
Survey of the A/C System, balancing and commissioning of the system.



Building of VETERINARY CLINIC & KENNEL, NSA
(Souda Bay, Crete – Greece)
Survey of the A/C System, balancing and commissioning of the system.

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Cruise Ships

TKCE has been assigned with the retrofitting and new building of several ships for the cruise industry.

The most important of the NBs and some retrofits are presented (complete HVAC design from preliminary design to as fitted dwgs).

"M/V MARCO POLO"



Owner : Norwegian Cruise Lines.
Date : 2004-2005
Project : Survey of the A/C & Ventilation System for the Laundry area, technical spaces and one public space. Submission of respective report for upgrading the A/C & Ventilation System.
Preliminary design. Submission of respective proposals for upgrading A/C & Ventilation System.

"Royal Caribbean Cruise Line, New building 492"

Owner : Royal Caribbean Cruise Line
Shipyard : Kvaerner Masa Yard – Finland
Project : A/C design and production of corresponding drawings for 10 Public spaces.
Revision and completion of basic design drawings for A/C System, all spaces M.F.Z. 3 and 4.
L.O.A. : 284m
Pax. : 2.000

"M/V GRAND PRINCESS"



Owner : Princess Cruises
Shipyard : Fincantieri Monfalcone – Italy, New Building 5956
Project : Design for the A/C System - M.F.Zones 2, 4 and 6 (electrical systems excluded).
Support in the engineering management for the complete ship.
Support in the commissioning and delivery of the system.
L.O.A. : 285 m
Pax. : over 2.600

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"M/V VOLENDAM"

Owner : Holland America
Shipyard : Fincantieri Marghera – Italy, New Building 6035
Project : Extensive participation in the design of a prototype Fan Coil Unit for installation in cabins.
Complete design of the A/C System (electrical systems excluded) by use of Fan Coil Units for all Passenger and Crew cabins.
Project management for the complete A/C System. Commissioning and delivery to the owners.
Pax. : over 1.800



"M/V AURORA"

Owner : P&O Cruises
Shipyard : Meyer Werft – Germany, New Building 640
Date : 1998
Project : Design of the A/C System for M.F.Zones 1, 4, 6 and 7.
Engineering management for the complete A/C System.
L.O.A. : 260 m
Pax. : 1.975



"M/V ASUKA"

Owner : South Pacific Cruise
Shipyard : Mitsubishi Heavy Industries – Japan, Conversion
Project : Design of the A/C system for a small number of areas to be converted.
L.O.A. : 193 m
Pax. : 604



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"M/V AMSTERDAM"

Owner : Holland America
Shipyard : Fincantieri Marghera – Italy, New Building 6052 (sister ship to 6035, 6036)
Date : 1999-2000
Project : Complete design of the A/C System (electrical systems excluded) by the use of Fan Coil Units for all Passenger and Crew cabins.
Project management for the complete A/C System. Commissioning and delivery to the owners.
L.O.A. : 237 m
Pax. : over 1.800



"DAWN PRINCESS"

Owner : Princess cruises
Shipyard : Fincantieri Monfalcone – Italy, New Building 6050
Date : 2001
Project : Complete design of the A/C System (electrical systems excluded).
Project engineering for the complete A/C System.
L.O.A. : 285 m
Pax. : over 2.600



"CROWN PRINCESS"

Owner : Princess cruises
Shipyard : Fincantieri Monfalcone – Italy, New Building 6051
Project : Complete design of the A/C System (electrical systems excluded).
Project engineering for the complete A/C System.
L.O.A. : 285 m
Pax. : over 2.600



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Navy, Offshore Activities & Other Vessels

HELLENIC NAVY REPLENISHMENT VESSEL

Owner : Hellenic Navy

Shipyard : Elefsis Shipyards

Project : Serving as consultants to the yard for various HVAC system issues. Survey, airflow measurements. Design. Issuing of specifications of necessary machinery. Supervision of works for the upgrading of the existing A/C & Ventilation System. Production of “as fitted” drawings.

HELLENIC NAVY FAST ATTACK CRAFTS

Owner : Hellenic Navy

Shipyard : Elefsis Shipyards

Project : Hellenic Navy Fast Attack Crafts. Serving as consultants to the yard for various HVAC system issues. Auditing of the design of the A/C System and respective summer tests. Airflow measurements.



BRASOIL P-52 (RONCADOR FIELD DEVELOPMENT)

Owner : Petrobras Netherland B.V.

Date : 2004

Project : Assistance in basic design for the A/C & Ventilation system, including all accommodation spaces, technical and electrical spaces, stores, workshops etc. Issuing of specifications for the air handling machinery.

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EKOFISK 2/4L LIVING QUARTER

Contractor : Wilhelmsen Marine Engineering
Owner : ConocoPhillips
Date : 2010-2013
Project : Basic design of HVAC system, Heating Cooling Load Calculations, D&IDs, Single Line diagrams, duct model in MagiCAD software, MTO lists, Pressure drop / sound calculations.
Detailed design. Participation in management and supervision of the erection on site.



ODFJELL 3033 RIG

Contractor : Wilhelmsen Marine Engineering
Owner : Odfjell Drilling
Date : 2012
Project : Modeling of duct system in MagiCAD. Pressure drop & Sound calculations.



FRED OLSEN RIG

Contractor : Wilhelmsen Marine Engineering
Date : 2012
Project : Modeling of duct system in MagiCAD. D&ID diagrams.

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Ferry Boats

A large number of ferry boats for domestic lines have trusted TKCE for extensive retrofitting and renovations.
The most important projects related to new buildings are listed below.

SUPER FAST FERRIES III AND IV

Shipyard : Kvaerner Masa Yard – Finland, New Buildings
Date : 2003
Project : Support to the owners for the revision of the specification for the A/C System.
Auditing of the complete design for the A/C System. Correction and submission of "Good for Approval" drawings to the Authorities.



SUPER FAST FERRIES V, VI, VII, VIII, IX and X.

Shipyard : HDW – Germany, New Buildings. Date: 2003
Project : Support to the owners for the issuing the specification for the A/C System.
Auditing of the complete design for the Ventilation and A/C System. Correction and submission of "Good for Approval" drawings to the Authorities.



BLUE STAR FERRIES

Shipyard : Daewoo – Korea, New Buildings 7507, 7508
Project : Auditing of the complete design for the A/C System.



BLUE STAR FERRIES M/V PAROS, M/V NAXOS

Shipyard : Daewoo – Korea, New Buildings 7507, 7508. Date: 2002-2003
Project : HVAC System conversion of cabin areas in deck 7.
Issuing of specifications for the air handling machinery.



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Yachts

"M/Y CHRISTINA O"

Shipyard : Split – Croatia, Conversion
Date : 2000-2001
Project : Design of new HVAC System for an extensive conversion, issuing of specifications for the machinery, management of the project, submission of drawings to the Authorities and Classification Societies. Approvals.
L.O.A. : 99 m



"M/Y PRINCE ABDUL AZIZ"

Shipyard : Hephaestus Hellas Shipyards S.A. – Greece
Project : Upgrading (designing and contracting) of the Automation System for the A/C plant.
L.O.A. : 99 m



"M/Y TUEQ"

Owner : SETE S.A (project name Triton)
Shipyard : Greece
Date : 2001
Project : Support to the owners for issuing specification for the A/C System.
Auditing of the complete design for the Ventilation and A/C System. Construction, survey and submission of respective report.
L.O.A. : 99 m



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"M/Y INSIGNIA (ex HANSE)"

Shipyard : Perama Shipyards – Greece, Conversion. Date: 2002

Project : L.O.A.: 50 m Design of a new HVAC System



"M/Y ASTARTE II"

Shipyard : Piraeus – Greece

Project : Survey of the A/C System. Submission of respective report for upgrading the HVAC System.

L.O.A. : 100 m



Sea Charter Co. New building

Owner : Sea Charter Co.

Shipyard : Cantiere Navale De Poli S.p.A. – Italy

Project : Not numbered new-building. Basic design for the A/C and Ventilation System.

L.O.A. : 71 m

"ANNALIESSE"

Owner : Liveras Yachts

Shipyard : Neorion Shipyards – Greece, New Building 1101.

Date : 2001-2002-2003

Project : Complete design for the A/C and Ventilation System.
Issuing of specifications for the air handling machinery.
Management, supervision and commissioning of the complete HVAC system.

L.O.A. : 85.3 m



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