COMPANY **PROFILE**

TEDES specializing in **cooling, heating, energy, and water filtration** services, we deliver reliable and eco-friendly systems for various industries.

TERMODINAMIKA
ENERGI SELARAS

TERMODINAMIKA
ENERGI SELARAS

ABOUT US

“Optimizing Energy, Empowering Sustainability”

We are commited to deliver energy and thermodynamics solutions that are efficient, reliable and sustainable.

OUR VISION

We aim to provide efficient, reliable, and sustainable solutions in cooling, heating, energy and water filtration for a better tomorrow.

OUR MISSION

We provide eco-friendly cooling, heating, energy efficiency and water filtration solutions that promote environmental stewardship, led by TEDES’s dedication to innovation.

Innovative Green Solutions

Our focus is providing the industry, commercial building, and food cold chain for innovative green cooling solutions.

Sustainable Heating/Cooling Project

Total solutions for your heating/cooling projects, from first ideas to working system.

Reliable Process Support

Our dedicated team will ensure reliable support for your business-critical processes through eco-friendly solutions.

STORY

TEDES is part of ATW Group (ATW Group is solar photovoltaic complete system integration and energy storage solutions). Our team has extensive experience in HVAC, heating/cooling processes, water purification and project management you can **Trust**.

We provide heating, cooling, water and electrical energy solutions that are more efficient, practical, **environmentally** friendly, easy to monitor (IoT ready). By selecting the latest proven reliable technology and collaborating with experienced partners, we ensure **sustainability** ecosystem.

We are **confident** in being business solution partner for our customers, especially in the energy sector, thermodynamics and water treatment, which are the core focus of our business

Our customers come from various industries, commercial buildings, food processing cold chains and partners seeking to undertake colaboration turnkey projects. We analyze each customer's specific needs and offer tailored solutions to meet their objectives

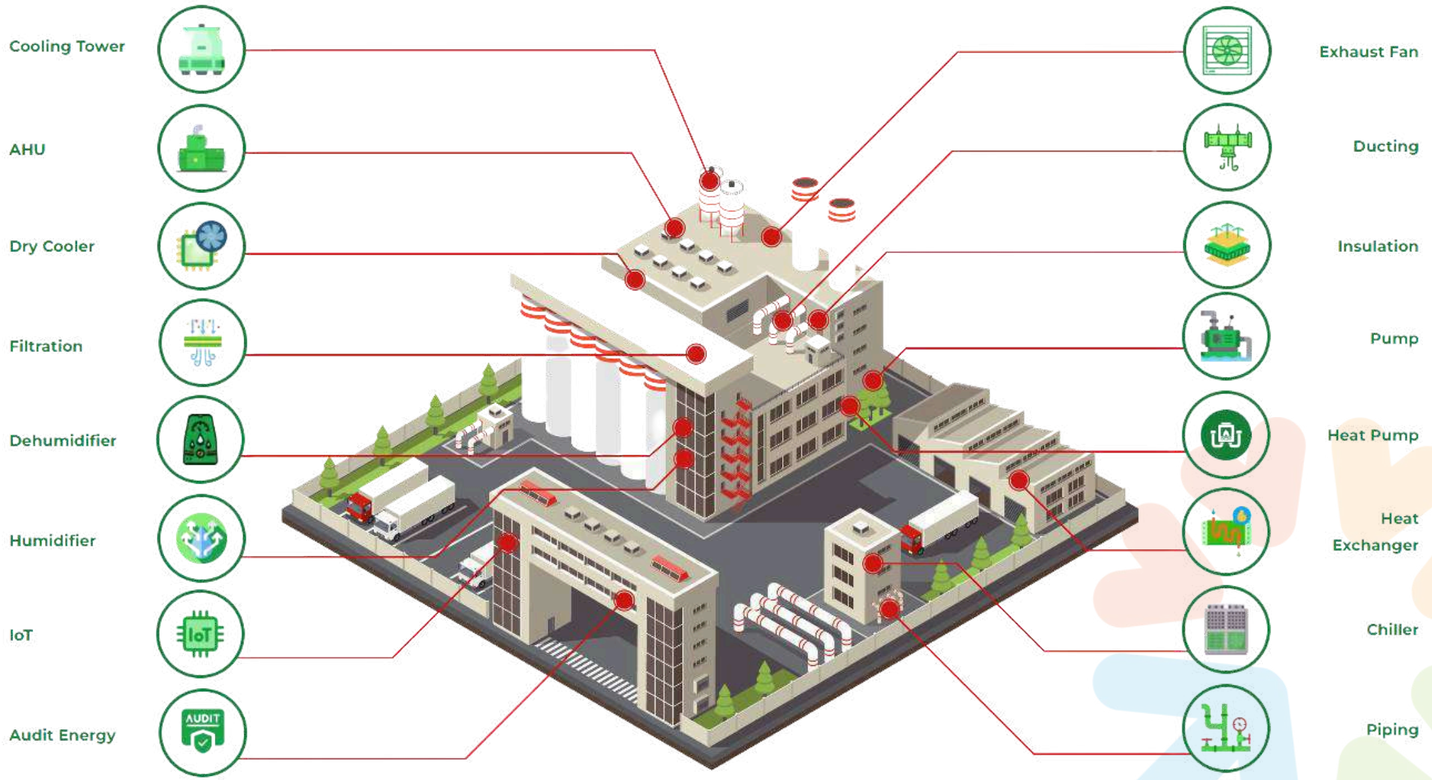
TERMODINAMIKA
ENERGI SELARAS

INDUSTRIAL SOLUTION

Innovative industrial heating and cooling systems tailored for your specific heating and cooling demand. We ensure our installation comply with all relevant local regulations, codes, and industry guidelines.

Cutting-edge industrial heating and cooling systems with innovative solutions and tailored for your spesific demand to deliver efficient temperature control while ensuring full compliance with applicable local regulations, standards, and industry guidelines. These advanced solutions are designed to optimize performance, promoting sustainability and reliability in industrial environments.

SUSTAINABLE HEATING AND COOLING SOLUTION



TERMODINAMIKA
ENERGI SELARAS

BUILDING SOLUTION

Energy-efficient heating and cooling systems for buildings, designed to maintain optimal indoor air quality and comfortable.

Our energy-efficient heating and cooling systems maintain building temperatures needs while reducing energy use, offering sustainable and cost-effective solutions for businesses and property owners.

With advanced technology, these systems optimize energy during peak and off-peak hours, integrating smoothly with building management systems. Our specialists ensure a seamless setup, allowing for immediate and long-term savings.

COOLING INNOVATION FOR THE FUTURE

TERMODINAMIKA
ENERGI SELARAS

FOOD PRESERVATION

A food preservation system plays a crucial role in preserving perishable goods like vegetables, meat, and seafood by maintaining optimal temperature conditions.

SUSTAINABLE SOLAR FOOD PRESERVATION

Utilzing renewable energy sources, such as solar power in conjuction with sandwich panel housing, enhances sustainability while reducing reliance on fossil fuels. This approach ensures energy efficiency, makin cold storage operations more environmentally friendly and faster build up.

Lowest Electric consumption & base on economical aspects

Integrated air blast freezer, anteroom, cold room

Refrigerant Ultra Low Global Warming Potential (**GWP**) & Ozone Depletion Potential **(ODP)**

Super Insulation :
-High density
-Thickness
-Anti bacterial
-Environment friendly

Features : On grid or off grid system available

TERMODINAMIKA
ENERGI SELARAS

• SANDWICH PANEL

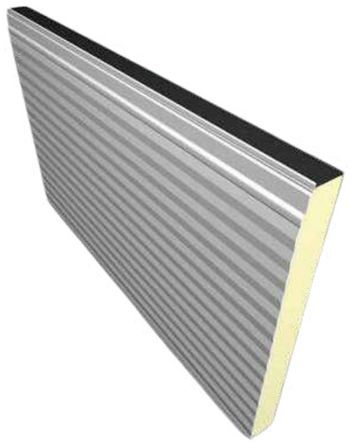
Sandwich Panels are used in a huge variety of building to meet the standards of architects.

Our commercial & industrial wall and roof system offer designers a comprehensive range of building solutions for vertical and horizontal wall applications.

Available in multiple profiles, finishes and color options, trimless ends and cover widths, insulated panels provide customized building design and creative freedom

The panels are easily integrated with traditional construction methods and building systems.

Sandwich Panels insulated wall systems offer superior R-values with unparalleled thermal performance during service life, all build-in to a single off-site factory assembled insulated panel.



ENERGY EFFICIENCY

Because it has an excellent insulation properties from sounds and temperature it can significantly reduces the energy used for electricity especially for air conditioning

GOOD INSULATION

Making your wall(s) and roof(s) cooler which will also increase your productivity inside the building

LOW COST

Efficiency, fast build time, does not require much man power build.

KNOCK DOWN

Has knock down installation system. It can be twaken apart and reassembled with ease to meet the needs of designed/intended layout.

ECO FRIENDLY

Safe for human and environment because it can reduce the usage of woods sugnificantly

NEAT & CLEAN

Neat, clean and hygienic installation, making your building look elegant and modern.

TERMODINAMIKA
ENERGI SELARAS

• WATER FILTRATION

“Water is life and clean water means health”

- why **Us**?
  - **Purified water,** avoids skin allergies and rashes, support skin and hair care.
  - **Suitable** for various industries and household.
  - **Simple backwash,** ensures maximum re-use with no additivies or chemical are required.
  - **Proven and tested, eliminating:** particles, various subtances and dissolved metals such as iron, mercury, colors, calcium, manganese, ammoniac, nitrite, lead, nitrate, matters, odors, fog and other noxious dissolved substances

~~~~~~~~~~~~~~~~~~~~~~~~~~**FACT**~~~~~~~~~~~~~~~~~~~~~~~~~~

71%
of the Earth’s surface is covered by water

97.5%
of the water has a high salt content.

"Almost 70% of the Earth is covered by water with a very high salt content."

and only
2.5%
of the freshwater is found in glaciers, ice sheets, groundwater, lakes, and rivers.

780 MILLION PEOPLES
LACK ACCESS TO CLEAN WATER

*That means 1 in 9 people.

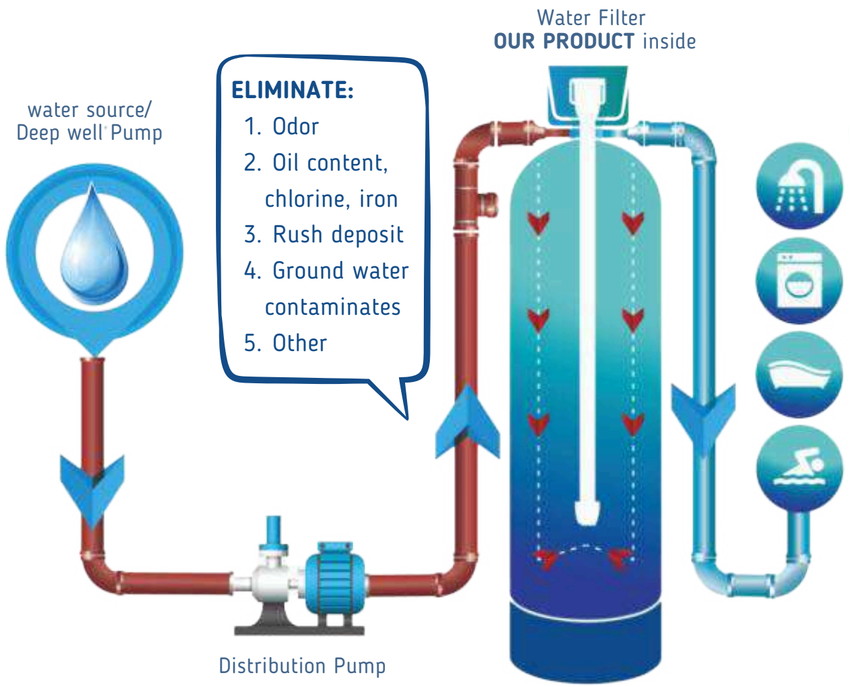
3.4 MILLION PEOPLES

DIE FROM WATERBORNE DOSEASES
~~~~~~~~~~~~~~~~~~~~~~~~~~

TERMODINAMIKA
ENERGI SELARAS

• WATER FILTRATION

SYSTEM INSTALLATION



Function:

- hotel
- factory
- house
- industry
- kitchen
- hospital
- apartment
- swimming pool
- etc

~~~~~~~~~~~~~~~~~~~MULTIPLE FUNCTION~~~~~~~~~~~~~~~~~~~

- Agriculture & Horticulture
- Chemical & Pharmaceutics
- Food & Beverage
- Industrial Water Supply
- Power Generation
- Universities & Research
- Engineering & Consulting
- Hydrocarbon Processing
- Micro Electronis & Science
- Tourism Hotels & Resorts
- Metal & Mining
- Oil & Gas

SERVICES

Trusted Services For Continuous Growth

CONSULTATION & DESIGN

We specialize in providing consultation and design services for HVAC systems, water filtration and energy related matter ensuring each project is optimized for efficiency, cost savings, and system reliability. Our designs are crafted to meet your specific needs, from concept to implementation, with a focus on sustainable performance.

Expert

TEDES provides expert insights on HVAC system design optimization, energy efficiency strategies, water qualification regulatory compliance, and maintenance best practices.

Guidance

We offer structured guidance to enhance HVAC skills and competencies among your team members.

Recommendation

TEDES delivers actionable recommendations aimed at improving overall system efficiency and reliability.

SERVICES

Trusted Services For Continuous Growth

OPERATION, MAINTENANCE, AND TRAINING

We provide excellent HVAC System, Water Filtration, Operation and Maintenance to ensure optimal performance and functionality at maximum efficiency. This will ensure longer lifetime of your utility facilities and related infrastructure.

OPTIMAL PERFOMANCE

Optimal performance reflects the system's ability to operate effectively in maintaining the set point

MAXIMUM EFFICIENCY

Maximum efficiency focuses on minimizing energy use while achieving optimal output

HVAC ENERGY AUDIT

We provide HVAC Energy Audit to identify opportunities for improving energy efficiency, reducing energy consumption, and optimizing comfort levels for occupants or cooling process.

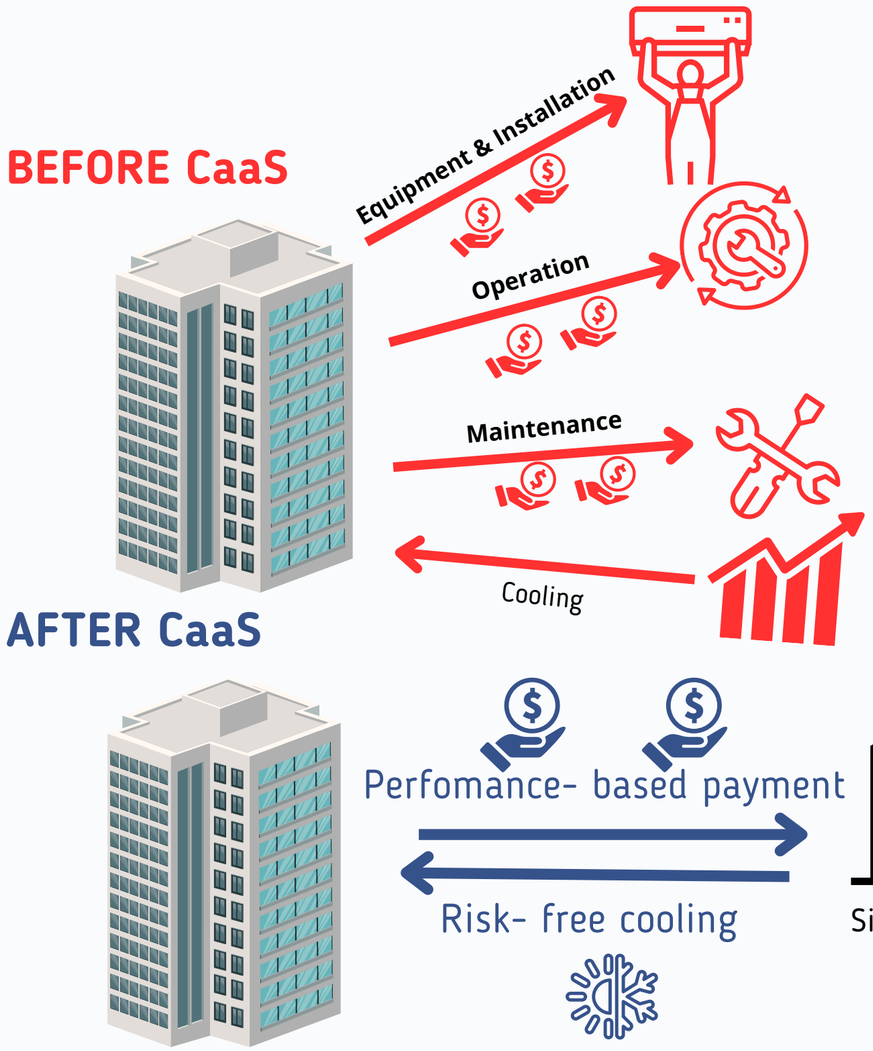
SERVICES

Trusted Services For Continuous Growth

COOLING AS A SERVICE (CaaS)

Our ‘sister company’ will invest, install, operate, and maintain the cooling system for you fully tailored to your needs by our experts. This means you will benefit from an energy efficient cooling solution without risks.

Our monthly CaaS bills are based on the cooling energy we supply, guarantee lower overall cooling costs while you focus on growing your core business.

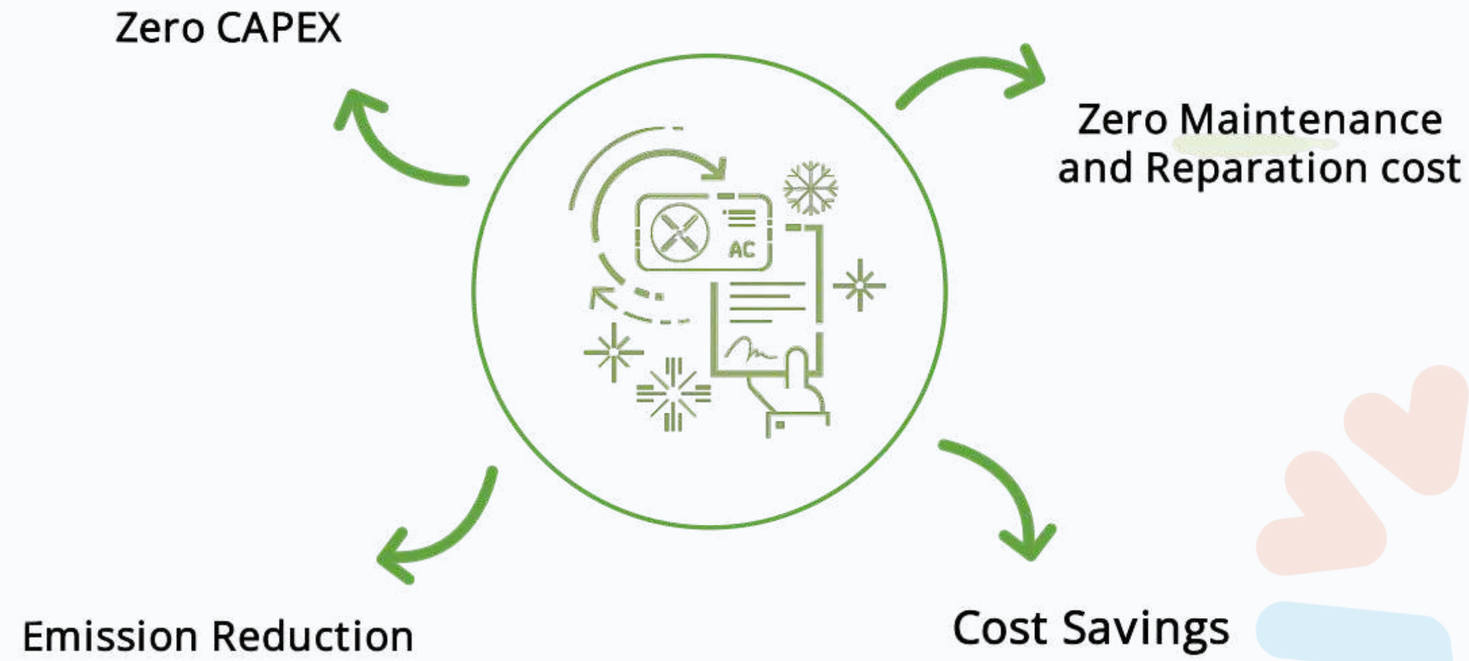


SERVICES

Trusted Services For Continuous Growth

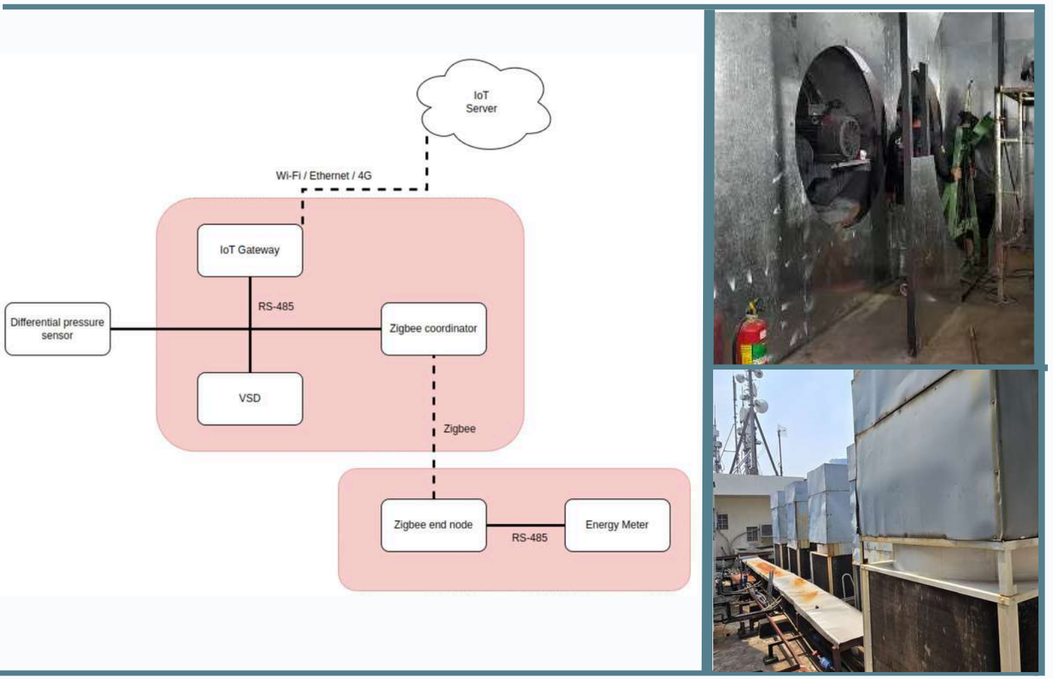
Our cooling as a service (CaaS) scheme enables client to save money on a high performing cooling system without any capital expenditure/upfront cost.

BENEFITS COOLING AS A SERVICE (CaaS)



CASE STUDIES

Creating Eco - Friendly Solutions



HVAC PLANT RECOVERY FROM FIRE DISASTER – WEST JAVA, TEXTILE FACTORY

TEDES and its partners is assisting a large textile factory in West Java to restore its HVAC plant after a fire disaster. By collaborating with HVAC component and sandwich panel manufacturers, TEDES helped the company recover the burned area within 14 days.

OFFICE HVAC RETROFIT WITH HYDROCARBON CHILLER – SOUTH JAKARTA

We assisted One of the Leading Indonesian Oil and Gas Engineering Company to conduct Retrofit and Reengineering of the Company's Head Quarter Office HVAC.

VSD AND COOLING TOWER RETROFIT FOR ONE TEXTILE FACTORY – BOGOR, WEST JAVA

TEDES is assisting Textile Company to conduct Energy Efficiency in the chiller and production machines with the help Online Monitoring System and replacing Cooling Tower and install VSD in their machinery motors.

CASE STUDIES

Creating Eco - Friendly Solutions

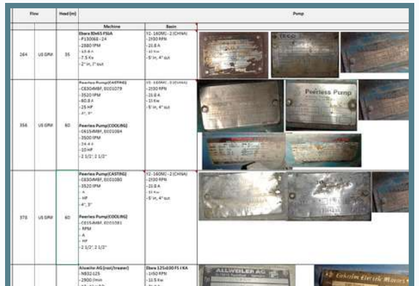
- **CHILLER RETROFIT FOR PP FILM FACTORY – WEST JAVA, BEKASI**

  A large-scale PP Film factory with high cooling water demands faced massive electricity costs and unstable water temperature. TEDES assisted the 40+ year-old factory, in retrofitting and reengineering its chiller plant, and increase its production capacity throughput.

1. **CHILLER PLANT AUDIT**

   => TEDES conducted a field survey to audit the existing Chiller Plant and indentify problems.



2. **ANALYZE & CALCULATE**

   => TEDES conducted an analysis to find solutions related to the Chiller Plant problems found during the survey and performed design calculations according to the Chiller Plant requirements.

Chiller Plant	Label	Machine/ Load	Nomor Basin	Brand	TR Chiller	No. Chiller	Status (On/Off/Backup)	EFFICIENCY									
								Chiller Efficiency			CHWP Efficiency		CWP Efficiency		CT Efficiency		CHILLER PLANT EFFICIENCY	ΔT evap
								Total kW	TR	Kw/TR	kW Consum	kW/TR	kW Consum	kW/TR	kW Consum	kW/TR	Kw/TR	(°C)
1	Extrusion 01	MHI 1	B1	HITACHI			OFF											
	Extrusion 02	EGAN 1	-				OFF											
	Extrusion 03	EGAN 2	B1				OFF											
2	Extrusion 04	SML 1 & EREMA 3	B0	HITACHI	500	CHILLER 1	ON	181.87	269.79	0.67	48.83	0.18	44.35	0.16	7.94	0.03	1.05	3.00
			B2	HITACHI	120	CHILLER 4	OFF											
3	Extrusion 05	SML 2	B3	HITACHI	120	CHILLER 5a	ON	68.04	127.34	0.53	32.76	0.26	29.78	0.23	4.86	0.04	1.06	5.90
		14 AHU / 7 AHU Panel		HITACHI	120	CHILLER 5b	ON	91.44	127.34	0.72			26.52	0.21	1.84	0.01	0.94	5.90

SUPPLY PIPE GALVANIZED — 4 — 3.3 — 100 — 0.3048 — 9.81 — 10 — 5 — 10

Line	Keterangan	Head	Water Flow		Diameter	Length		Total Length		Velocity	Head Loss	Pressure Drop	Pressure Drop	Pressure Drop Unit		Pressure Drop Accumulation	ELBOW		TEE				
		m	M^3/h	GPM	inch	m	ft	m	ft	ft/s	ft/100 ft	ft/100 ft	m	Kpa	m	m	90	45	6"	8"	10"	12"	14"
1	MHI 1	35	60	264	4"	35.50	116.47	85.50	280.51	6.65	3.896	10.93	3.33	343.35	35.00	18.31	5						
2	EGAN 2	60	81	356	5"	16.50	54.13	66.50	218.18	5.71	2.214	4.83	1.47	588.60	60.00	16.45	5						
3	1+2			620	6"	35.80	117.45	65.80	215.88	6.89	2.52	5.44	1.66	0.00	0.00		2		1				
4	EGAN 1	60	86	378	5"	5.60	18.37	45.60	149.61	6.06	2.478	3.71	1.13	588.60	60.00	14.45	4						
5	3+4			999	8"	13.00	42.65	23.00	75.46	6.41	1.576	1.19	0.36	0.00	0.00					1			
6	SML 1	60	90	396	5"	5.60	18.37	45.60	149.61	6.35	2.706	4.05	1.23	588.60	60.00	14.19	4						
7	5+6			1395	8"	30.00	98.42	60.00	196.85	8.95	2.972	5.85	1.78	0.00	0.00		2			1			
8	SML 2	60	96	422	5"	5.50	18.04	45.50	149.28	6.77	3.051	4.55	1.39	588.60	60.00	12.56	4						
9	7+8			1817	10"	14.00	45.93	24.00	78.74	7.39	1.571	1.24	0.38	0.00	0.00						1		
10	MHI 2	55	122	537	6"	5.50	18.04	45.50	149.28	5.96	1.921	2.87	0.87	539.55	55.00	11.67	4						
11	9+10			2354	10"	17.00	55.77	27.00	88.58	9.58	2.573	2.28	0.69	0.00	0.00						1		
12	BTF 1	50	90	396	5"	5.50	18.04	45.50	149.28	6.35	2.706	4.04	1.23	490.50	50.00	11.33	4						
13	11+12			2750	10"	85.00	278.87	105.00	344.49	11.19	3.467	11.94	3.64	0.00	0.00		1				1		
14	TANGO	55	54.9	242	4"	20.50	67.26	70.50	231.30	6.1	3.306	7.65	2.33	539.55	55.00	13.94	5						
15	GULDEN	55	58.5	257	4"	6.15	20.18	56.15	184.22	6.48	3.703	6.82	2.08	539.55	55.00	13.69	5						
16	14+15			499	6"	32.00	104.99	42.00	137.79	5.54	1.673	2.31	0.70	0.00	0.00				1				
17	RABIT K5000-3350	98	58.5	257	6"	6.15	20.18	56.15	184.22	6.48	3.703	6.82	2.08	961.38	98.00	12.99	5						

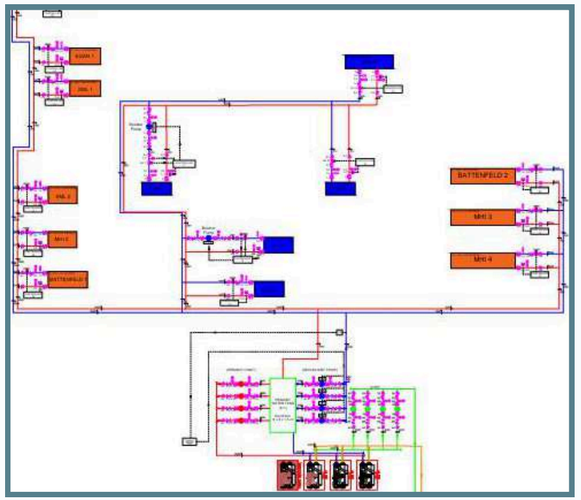
CASE STUDIES

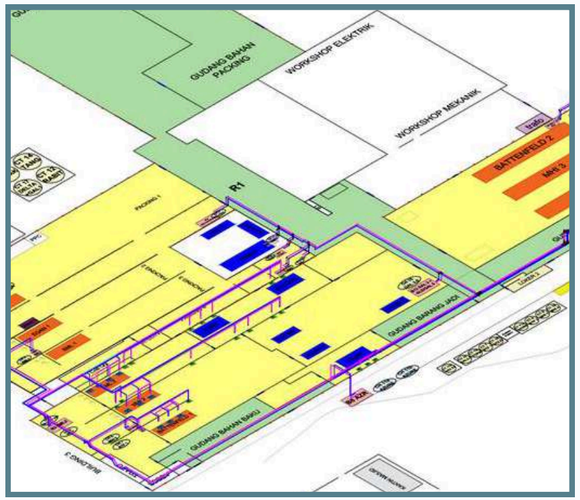
Creating Eco - Friendly Solutions

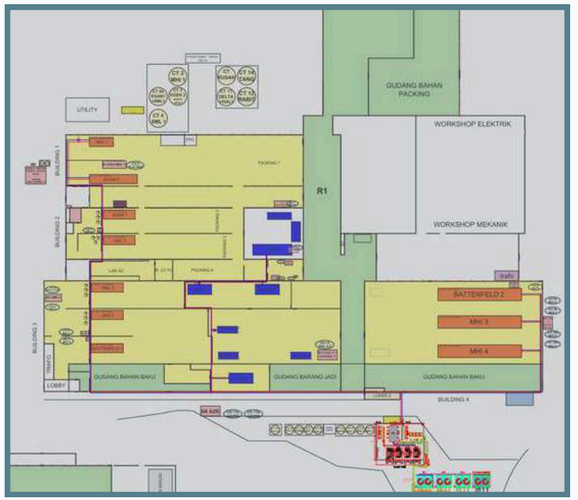
- **CHILLER RETROFIT FOR PP FILM FACTORY – WEST JAVA, BEKASI**
  A large-scale PP Film factory with high cooling water demands faced massive electricity costs and unstable water temperature. TEDES assisted the 40+ year-old factory, in retrofitting and reengineering its chiller plant, and increase its production capacity throughput.

3. **HVAC DESIGN & EQUIPMENT SELECTION**

   => TEDES design New Centrallized Chiller Plant to replace existing chiller units and selected the most suitable chiller system for the customer and the new proposed system could **save more than 50%** energy usage compare to the old system.







CASE STUDIES

Creating Eco - Friendly Solutions

- **CHILLER RETROFIT FOR PP FILM FACTORY – WEST JAVA, BEKASI**

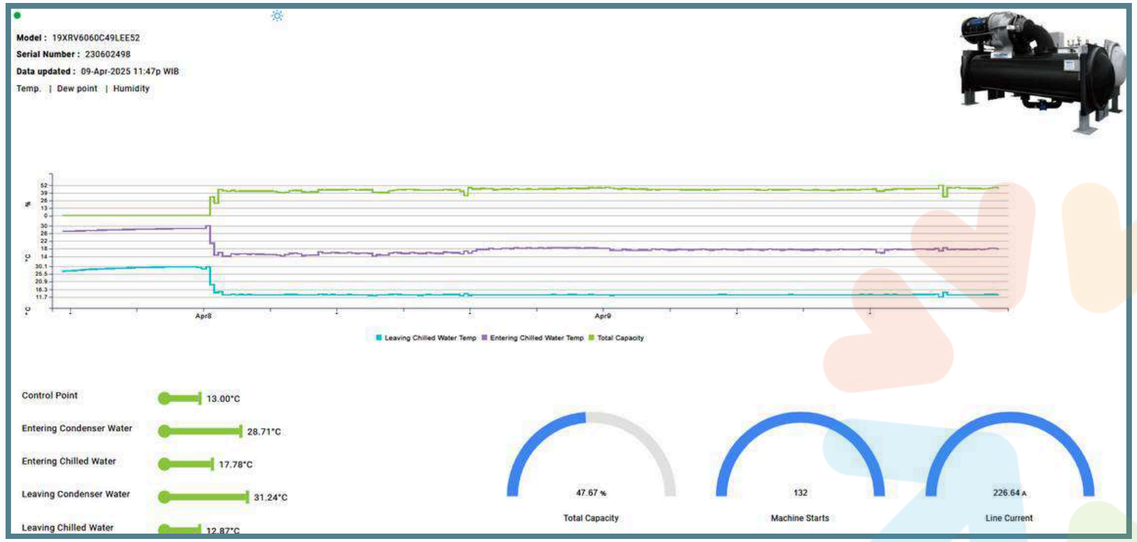
  A large-scale PP Film factory with high cooling water demands faced massive electricity costs and unstable water temperature. TEDES assisted the 40+ year-old factory, in retrofitting and reengineering its chiller plant, and increase its production capacity throughput.

4. IMPLEMENTATION

=> Customer purchased the first chiller and proved that the projected 50% saving could be achieved.

5. MONITORING

=> TEDES monitor the chiller performance while discussing implementation of the completion of the new chiller plant.



CASE STUDIES

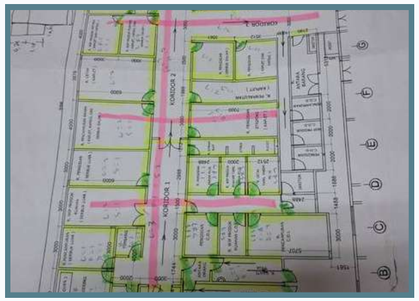
Creating Eco - Friendly Solutions

- **COMPLIANCE HVAC SYSTEM TO GOVERMENT REGULATORY FOR HERBAL MEDICINE INDUSTRY – EAST JAKARTA**

  TEDES is assisting One Herbal medicine factory to improve HVAC system to comply with Goverment Regulatory (BPOM)

1. **HVAC AUDIT**

   => TEDES conducted a field survey to audit the existing HVAC system and indentify problems.



2. **ANALYZE & CALCULATE**

   => TEDES conducted an analysis to find solutions related to the HVAC problems found during the survey and performed design calculations according to the HVAC requirements.

NOMOR RUANGAN	NAMA RUANGAN	Zoning	Room Classification	Room Dimension			BTU	CMH	Ceiling	Jam Operational	Jumlah Titik Lampu	How many Person	HVAC requirement					
				L (m)	W (m)	A (m2)			H (m)	Hours			Temperature	%RH	Pressure	Air Change	can be Monitor/ Control	Exhaust
1102	Ruang Antara Barang		SEKUNDER	1,85	2,34	4,33	4329,00	64,94	3		0	0	25	55	+	5	-	
1103	Loker Wanita		SEKUNDER	3,37	1,85	6,23	6234,50	93,52	3		0	10	25	55		5	-	
1104	Koridor		PRIMER	11,84	1,85	21,93	21928,00	328,92	3		4	0	25	55	++	5	-	
1105	Ruang Proses		PRIMER	10,84	7,35	75,35	75345,00	1130,18	3		8	5	25	55	++	5	OK	
1106	Ruang Antara Barang		SEKUNDER	2,34	1,85	4,33	4329,00	64,94	3		1	0	25	55		5	-	
1107	Ruang Proses		PRIMER	29,85	4,86	149,00	149001,00	2233,02	3		20	5	25	55	++	5	OK	
1108	Ruang Ruahan Cair (area 1)		PRIMER	15,84	4,34	68,75	68745,60	1031,18	3		3	1	25	55	++	5	OK	
1108	Ruang Ruahan Cair (area 2)		PRIMER	7,49	4,86	36,40	36401,40	546,02	3		0	1	25	55	++	5	OK	
1109	Ruang SPV		SEKUNDER	2,34	2,86	6,69	6692,40	100,39	3		1	2	25	55	++	5	-	
1110	Ruang Staging Bahan Pengemas Primer		PRIMER	7,83	1,83	14,33	14328,90	214,93	3		0	6	25	55	++	5	OK	
1111	Ruang Panel		PRIMER	7,83	1,83	14,33	14328,90	214,93	3		0	0	25	55		5	-	
1112	Ruang Pengisian		PRIMER	13,84	3,83	53,01	53007,20	795,11	3		3	14	25	55	++	5	OK	
1113	Ruang Ruahan		PRIMER	17,81	2,86	50,94	50936,40	764,05	3	24	6	1	25	55	++	5	OK	
1114	Ruang Pengisian		PRIMER	15,50	2,86	44,33	44330,00	664,95	3		5	18	25	55	++	5	OK	
1115	Ruang Pengemasan Sekunder (area 1)		SEKUNDER	15,35	7,83	120,19	120190,50	1802,86	3		14	50	25	55	+	5	OK	
1115	Ruang Pengemasan Sekunder (area 2)		SEKUNDER	3,98	4,86	19,34	19342,80	290,14	3		2	15	25	55	+	5	OK	
1116	Tangga		SEKUNDER	4,86	1,83	8,99	8991,00	134,87	3		0	0	25	55		5	-	
1117	Ruang Adm.		SEKUNDER	5,86	4,86	28,48	28479,60	427,19	3		0	3	25	55		5	-	
1118	Ruang Ruahan		PRIMER	8,52	2,37	20,19	20192,40	302,89	3		2	1	25	55	++	5	OK	
1119	Ruang Janitor		SEKUNDER	2,37	2,00	4,74	4740,00	71,10	3		1	1	25	55		5	-	

AIR FLOW SAG	LUAS PENAMPANG DIBUTUHKAN	JUMLAH PER RUANGAN	AIR FLOW SAG PER UNIT	AIR FLOW SAG PER UNIT	LUAS PENAMPANG PER UNIT	DIMENSI SAG PER UNIT		Size SAG	LUAS PENAMPANG DIBUTUHKAN	JUMLAH PER RUANGAN	AIR FLOW SAG PER UNIT	DIMENSI RAG PER UNIT		Size RAG
m^3/s	m^2	unit	CMH	m^3/s	m^2	m	m	neck (mm)	m^2	unit	CMH	m	m	neck (mm)
0,25	0,10	1,00	887	0,25	0,10	0,31	0,31	300 x 300	0,09	1,00	798	0,25	0,35	250 x 350
0,09	0,03	1,00	315	0,09	0,03	0,19	0,19	200 x 200	0,03	1,00	283	0,25	0,13	250 x 150
0,14	0,06	1,00	511	0,14	0,06	0,24	0,24	250 x 250	0,05	1,00	459	0,25	0,20	250 x 200
0,00	0,00	1,00	0	0,00	0,00	0,00	#DIV/0!		0,00	1,00	0	0,25	0,00	
0,00	0,00	1,00	0	0,00	0,00	0,00	#DIV/0!		0,00	1,00	0	0,25	0,00	
0,17	0,07	1,00	611	0,17	0,07	0,26	0,26	250 x 250	0,06	1,00	550	0,25	0,24	250 x 250
0,06	0,02	1,00	209	0,06	0,02	0,15	0,15	150 x 150	0,02	1,00	188	0,15	0,14	150 x 150
0,05	0,02	1,00	175	0,05	0,02	0,14	0,14	150 x 150	0,02	1,00	158	0,15	0,12	150 x 125
0,00	0,00	1,00	0	0,00	0,00	0,00	#DIV/0!		0,00	1,00	0	0,25	0,00	
0,28	0,11	2,00	489	0,14	0,06	0,24	0,24	250 x 250	0,10	1,00	887	0,25	0,40	250 x 400
0,28	0,11	2,00	489	0,14	0,06	0,24	0,24	250 x 250	0,10	1,00	887	0,25	0,40	250 x 400
0,51	0,21	2,00	924	0,26	0,10	0,32	0,32	325 x 325	0,16	1,00	1663	0,35	0,53	350 x 550
0,11	0,04	1,00	396	0,11	0,04	0,21	0,21	225 x 225	0,04	1,00	358	0,25	0,16	250 x 175
0,08	0,03	1,00	315	0,09	0,03	0,19	0,19	200 x 200	0,03	1,00	283	0,25	0,13	250 x 150
0,11	0,04	1,00	403	0,11	0,04	0,21	0,21	225 x 225	0,04	1,00	363	0,25	0,16	250 x 175
0,12	0,05	1,00	446	0,12	0,05	0,22	0,22	250 x 250	0,04	1,00	402	0,25	0,18	250 x 200
0,03	0,01	1,00	96	0,03	0,01	0,10	0,10	100 x 100	0,01	0,00	#DIV/0!	0,25	#DIV/0!	
0,11	0,04	1,00	394	0,11	0,04	0,21	0,21	225 x 225	0,04	1,00	355	0,25	0,16	250 x 175
0,09	0,03	1,00	312	0,09	0,03	0,19	0,19	200 x 200	0,03	1,00	280	0,25	0,12	250 x 125
0,11	0,04	1,00	399	0,11	0,04	0,21	0,21	225 x 225	0,04	1,00	359	0,25	0,16	250 x 175
0,37	0,15	2,00	673	0,19	0,07	0,27	0,27	275 x 275	0,13	1,00	1211	0,25	0,54	250 x 550

	Airflow	Luas Penampang	Dimensi Ducting (mm) rumus		Dimensi Ducting (mm) pakai	
			lebar x tinggi		lebar x tinggi	
	CMH	m^3/s	m^2			
	AHU 1					
	672	0,19	0,04	194 x 193	200 x 200	
	672	0,19	0,04	194 x 193	200 x 200	
*	1346	0,37	0,07	274 x 273	280 x 280	
	712	0,20	0,04	199 x 199	200 x 200	
	595	0,17	0,03	182 x 182	190 x 190	
*	1307	0,36	0,07	270 x 269	270 x 270	
**	2652	0,74	0,15	384 x 384	390 x 390	
	652	0,18	0,04	191 x 190	200 x 190	
*	1304	0,36	0,07	270 x 268	270 x 270	
***	3956	1,10	0,22	469 x 469	470 x 470	
	668	0,19	0,04	193 x 192	200 x 200	
	668	0,19	0,04	193 x 192	200 x 200	
*	1335	0,37	0,07	273 x 272	280 x 280	
****	5292	1,47	0,29	568 x 500	590 x 500	
	672	0,19	0,04	194 x 193	200 x 200	
*	1346	0,37	0,07	274 x 273	280 x 280	
*****	6637	1,84	0,37	737 x 500	740 x 500	

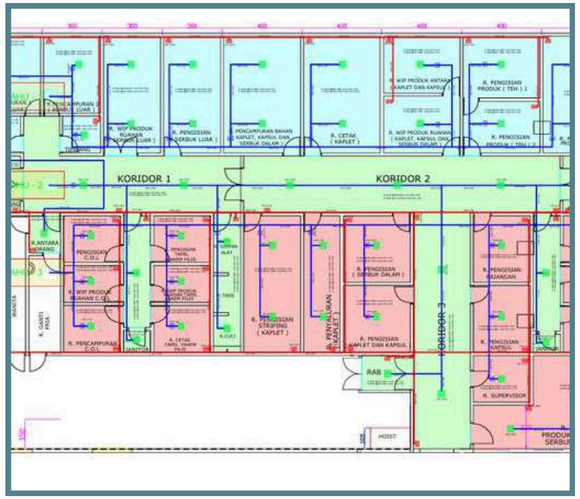
CASE STUDIES

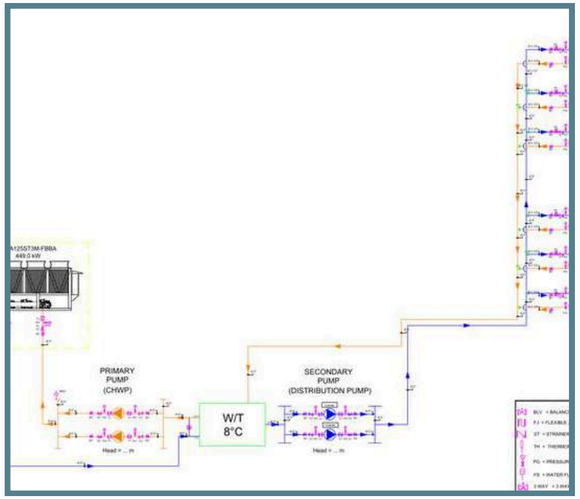
Creating Eco - Friendly Solutions

- **COMPLIANCE HVAC SYSTEM TO GOVERMENT REGULATORY FOR HERBAL MEDICINE INDUSTRY – EAST JAKARTA**
  TEDES is assisting One Herbal medicine factory to improve HVAC system to comply with Goverment Regulatory (BPOM)

3. **HVAC DESIGN & EQUIPMENT SELECTION**

   => TEDES created HVAC design drawings dan selected the most suitable HVAC system for the customer to comply with government regulation.





4. **IMPLEMENTATION**

   => TEDES will do the procurement, construction up to testing and commissioning of the system. Based on customer's request we also will help them on the civil works and lighting as one package.

5. **OPERATION & MAINTENANCE**

   => As an option TEDES could provide operation and maintenance the whole system, so customer could focus on their main core business.

TERMODINAMIKA
ENERGI SELARAS

CASE STUDIES

Creating Eco - Friendly Solutions

- **HVAC AND CHILLER RETROFIT SUPERMALL IN BEKASI AREA**

TEDES is supporting a Supermall in Bekasi area doing retrofing 30 years old Air Conditioning System to have better perfomance for cooling the common area and at the same time reducing electricity cost.

1. HVAC AUDIT

=> TEDES conducted an audit of the existing HVAC system and carried out an identification and condition check of the mall.




2. ANALYZE & CALCULATE

=> TEDES identified the existing units and performed calculations to estimate energy savings based on the current usage, as well as conducted piping calculations.

Existing		Proposed		Saving	kWh/Day	kWh/Year	Rupiah/Year		Rupiah/kWh	
TOTAL Watt	2.916.588	1808,48	Kw	886,49	10.638	3.829.637	Rp	3.966.661.526,87	Rp	1.035,78
				Load Factor 0,8	Operating hours (10.00-22.00)	Operating Days/year (360)				

	3,412
COP (total btuh/3,412)/kW total	2,908
	3,516

	Existing AC Efficiency	Proposed Chiller
KW/ TR (3,516/ COP)	1,209	0,75

SUPPLY 4 3,3 100 0,3048 0,102

		LANTAI	TOTAL LOAD	AIR FLOW	WATER FLOW	CONNECTION	Diameter	Length		Total Length		Pressure Drop	Pressure Drop	Pressure Drop Unit		
			kW	CMH	GPM	INCH	inch	m	ft	m	ft	ft/100 ft	m	Kpa	m	
163	Koridor Timur 1		43,23	10.827	45,49	1 1/4"	2 1/2"	19,33	63,42	39,33	129,04	2,10	0,64	58,60	5,98	
164	Koridor Timur 2		43,23	10.827	45,49	1 1/4"	2 1/2"	3,56	11,68	23,56	77,30	1,26	0,38	58,60	5,98	
AA	K. Tim 1+ K.Tim 2				90,97		3"	6,55	21,49	16,55	54,30	0,60	0,18	26,00	2,65	
150	Food Court		178,10	29.750	134,31	2 1/2"	4"	13,28	43,57	43,28	141,99	1,56	0,47	58,60	5,98	
AB	AA+Foodcourt				225,28		4"	17,73	58,17	27,73	90,98	1,00	0,30	58,60	5,98	
159	Koridor atrium utama 1		43,23	10.827	45,49	1 1/4"	2 1/2"	3,09	10,14	23,09	75,76	1,23	0,38	58,60	5,98	
AC	AB+K.ATRIUM UTAMA 1				270,77		5"	6,37	20,90	16,37	53,71	0,71	0,22	58,60	5,98	
X-8	WCP ATRIUM UTAMA		43,23	10.827	45,49	1 1/4"	2 1/2"	2,90	9,51	22,90	75,13	1,22	0,37	58,60	5,98	
AD	AC+ X-8				316,26		5"	5,86	19,23	15,86	52,03	0,92	0,28	58,60	5,98	
160	Koridor atrium utama 2		43,23	10.827	45,49	1 1/4"	2 1/2"	3,78	12,40	23,78	78,02	1,27	0,39	46,50	4,74	
X-5	WCP KORIDOR BARAT 1		43,23	10.827	45,49	1 1/4"	2 1/2"	4,83	15,85	24,83	81,46	1,33	0,40	88,18	8,99	
AE	K.ATRI UTAMA 2 + X-5				90,97		3"	6,55	21,49	16,55	54,30	1,09	0,33	35,58	3,63	
AF	AD+AE				407,23		5"	15,79	51,80	25,79	84,61	2,41	0,73	58,60	5,98	
161	Koridor barat 1		43,23	10.827	45,49	1 1/4"	2 1/2"	3,26	10,34	23,26	76,34	1,27	0,39	88,18	8,99	

CASE STUDIES

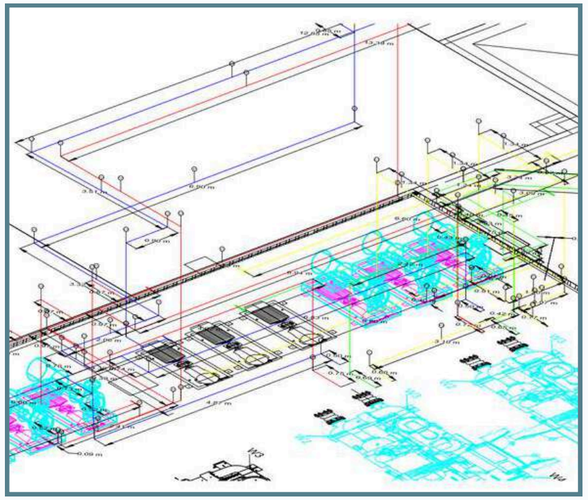
Creating Eco - Friendly Solutions

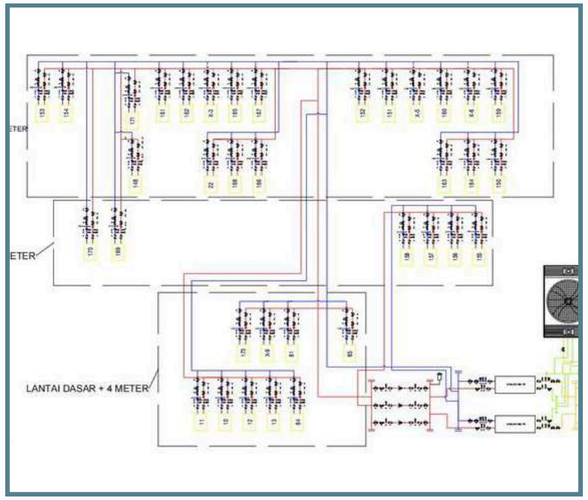
- **HVAC AND CHILLER RETROFIT SUPERMALL IN BEKASI AREA**

  TEDES is supporting a Supermall in Bekasi area doing retrofing 30 years old Air Conditioning System to have better perfomance for cooling the common area and at the same time reducing electricity cost.

3. HVAC DESIGN & EQUIPMENT SELECTION

=> The new system will be able to achieve approximately 35% power saving compare to the existing system. The new system also will require less maintenance and easier operation.





4. IMPLEMENTATION

=> TEDES will do the procurement, construction up to testing and commissioning of the system.

5. OPERATION & MAINTENANCE

=> As an option TEDES could provide operation and maintenance the whole system, so customer could focus on their mall operation.

OUR PARTNERS

ATW Solar

CAKRA DUCTING

HIJAU

DAIKIN

Carrier

NEWIN
All About Cooling Tower

PT. SUKSES MANDIRI TEKNIK
Stainless Steel Fabrication

Ferbos Software

ZELLTECH™

THERMAX

THERMOBREAK®
Thermal & Acoustic Insulation

AFAFLOW

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THANK **YOU**

PT. TERMODINAMIKA ENERGI SELARAS

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