

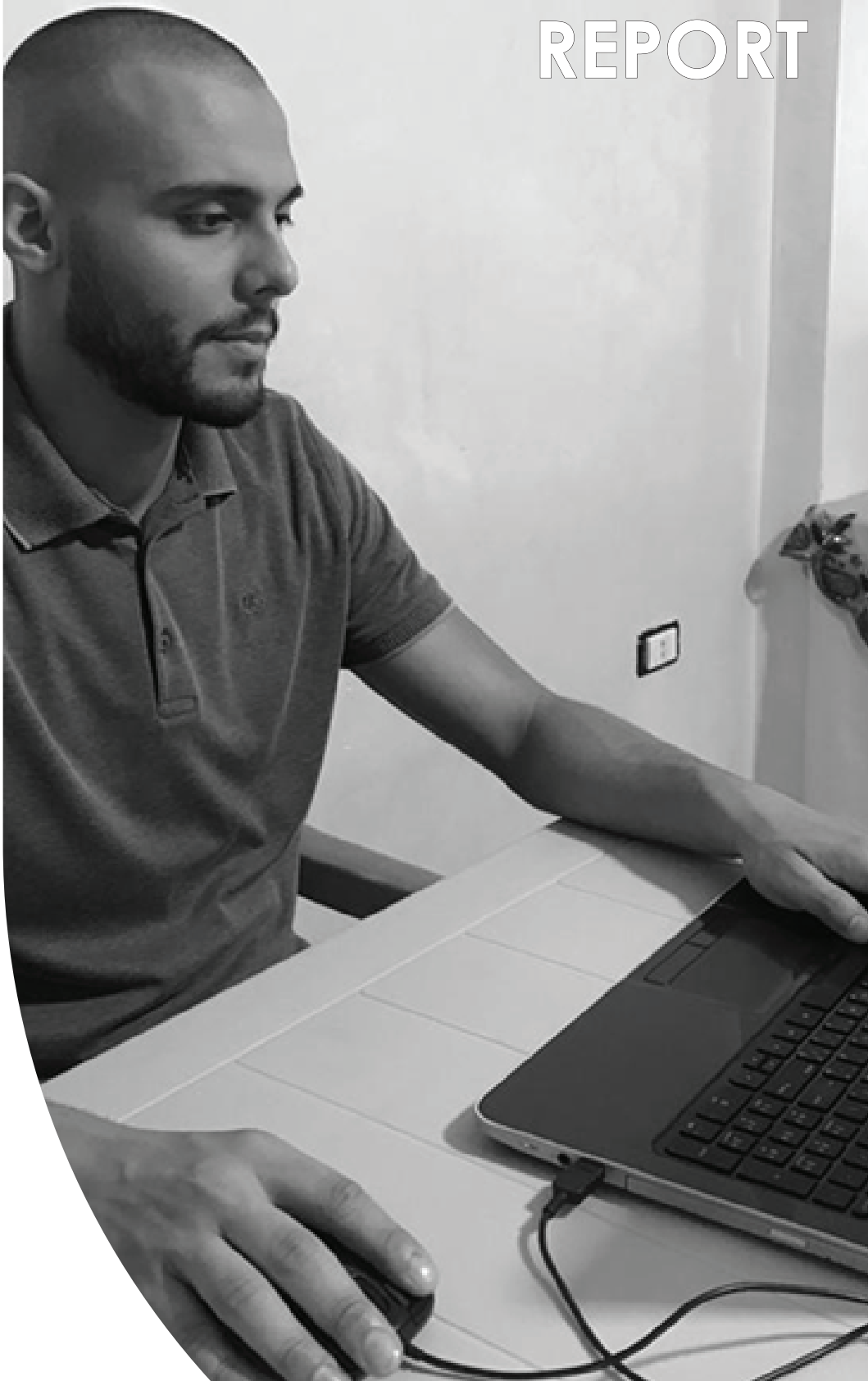
# THE PROFESSIONAL REPORT

MUSTAFA  
LUKMAN  
JBARA

MECHANICAL  
ENGINEER

PLUMBING  
CHILLER  
VENTILLATION  
FIRE FIGHTING

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CURRICULUM  
VITAE

PLUMBING  
SYSTEM

CHILLER  
SYSTEM

VENTILATION  
SYSTEM

FIRE FIGHTING  
SYSTEM

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## MUSTAFA JBARA

MECHANICAL ENGINEER



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### PERSONAL INFO

BORN IN 12-2-1997  
I'M AN INDEPENDENT  
MECHANICAL ENGINEER  
THAT'S EAGER TO  
INTEGRATE CREATIVE AND  
INNOVATIVE DESIGNS  
AND CONCEPTS INTO  
YOUR PERSONAL OR  
PROFESSIONAL PROJECTS.

### CONTACTS

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- Tripoli, Lebanon

### SKILLS

#### REVIT FIRE FIGHTING SYSTEM



#### REVIT PLUMBING SYSTEM



#### REVIT CHILLER SYSTEM



#### REVIT VENTILATION SYSTEM



#### SOLIDWORKS



#### PIPE SIZER



#### DUCT SIZER



#### ELITE FIREFIGHTING



#### ASHRAE DUCT FITTING DATABASE



#### HOURLY ANALYSIS PROGRAM



### WORK EXPERIENCE

#### ENGINEERING EDUCATION CENTER

WORKSHOP AT ENG. HALIM AL  
HOJJAIRI, WHERE I LEARN HOW TO  
USE AUTODESK REVIT IN MECHANICAL  
ENGINEERING IN MANY SYSTEMS.

### EDUCATION

#### LEBANESE INTERNATIONAL UNIVERSITY

BACHELOR OF SCIENCE OF  
MECHANICAL ENGINEERING.  
GRADUATED IN 2021

#### AL-NAJAT SECONDARY SCHOOL - BOYS (KUWAIT)

### LANGUAGES & TALENTS

FOOTBALL

SWIMMING

VOLLEYBALL

ARABIC & ENGLISH

### REFERENCES

ENG. HALIM AL HOJJAIRI  
+961 71 638 652

ENG. MUSTAFA SHERKAWI  
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# PLUMBING SYSTEM

IN PLUMBING SYSTEM, THE INTERNATIONAL PLUMBING CODES (IPC) HAS MADE TO DETERMINE THE SIZE OF DOMESTIC WATER PIPES, SANITARY PIPES AND MANHOLES. I CALCULATED THE FIXTURE UNIT (FU) IN MY PROJECT. USING (PPVC) PIPES IN SANITARY BECAUSE THEY ARE LESS COST, MORE STRENGTH, TAKE LESS TIME AND CAN BE RECYCLED. (PVC) PIPES UTILIZE IN DOMESTIC WATER. U-TRAP PREVENT UNWANTED GASES FROM ENTERING THE ROOM. SIPHON PARQUET HAS THE SAME OBJECTIVE OF U-TRAP.

- SIZING DOMESTIC WATER PIPE (IPC).
- USING ACCESSORIES (VALVES, U-TRAP, SIPHON PARQUET).
- SIZING SANITARY PIPE (IPC).
- MANHOLE SIZING (IPC).
- KNOWING FIXTURE UNIT (IPC).

# CHILLER SYSTEM

IN CHILLER SYSTEM, I USED (MCQUAY) SOFTWARE TO SIZE CHILLED WATER PIPES AND DUCTS. THE "SMACNA" CODE TO DESIGN DIFFUSERS AND DETERMINE DUCTS THICKNESS.

I MADE A BILL OF QUANTITY (BOQ) AND PERFORMED SOME CALCULATIONS TO KNOW THE WEIGHT OF DUCTS IN PROJECT. THEN I CALCULATED THE EXTERNAL STATIC PRESSURE (ESP) USING ASHRAE DUCT FITTING DATABASE SOFTWARE.

AFTER THAT, TAKE ON SOME ACCESSORIES TO PROTECT THE SYSTEM LIKE STRAINER THAT ARE DESIGNED TO PROTECT WATER AND STEAM PIPING SYSTEM COMPONENTS FROM DIRT AND RUST. FLEXIBLE PIPE CONNECTOR USED TO PROTECT THE DEVICES FROM VIBRATION. IT ABSORBS VIBRATION FROM FAN COIL UNIT (FCU), AND PUMP TO PIPES.

BY PUTTING GATE VALVE FOR MAINTENANCE AND A DAMPER TO CONTROL THE FLOW. AN AIR-HANDLING UNIT (AHU) IS USED TO RE-CONDITION AND CIRCULATE AIR AS PART OF HEATING, VENTILATION AND AIR-CONDITIONING SYSTEM. THE BASIC FUNCTION OF THE AHLT IS TO TAKE IN EXHAUST AIR OR OUTSIDE AIR, RE-CONDITION IT AND SUPPLY IT AS A FRESH AIR TO A BUILDING.

A CHILLER USES A VAPOR COMPRESSION MECHANICAL REFRIGERATION SYSTEM THAT CONNECTS TO THE PROCESS WATER SYSTEM THROUGH A DEVICE CALLED AN EVAPORATOR. REFRIGERANT CIRCULATES THROUGH AN EVAPORATOR, COMPRESSOR, CONDENSER AND EXPANSION DEVICE OF A CHILLER. THE FOLLOWING ARE THE COMPONENTS USED IN THE PROJECT WITH DIFFERENT VIEWS.

# VENTILATION SYSTEM

IN VENTILATION SYSTEM, (MCQUAY) SOFTWARE IS MADE FOR SIZE DUCTS. TO DESIGN DIFFUSERS AND DETERMINE DUCTS THICKNESS I USED ASHRAE CODE. EXPLOITING A BILL OF QUANTITY (BOQ) AND PERFORMED SOME CALCULATIONS TO KNOW THE WEIGHT OF DUCTS IN PROJECT. AFTER THAT CALCULATING THE EXTERNAL STATIC PRESSURE (ESP) USING ASHRAE DUCT FITTING DATABASE SOFTWARE:

- SIZING DUCT (MCQUAY).
- AIR TERMINAL SELECTION (ASHRAE).
- THICKNESS CALCULATION FOR EACH DUCT.
- BILL OF QUANTITY (BOQ) AND CALCULATE THE WEIGHT OF DUCTS.
- CALCULATE EXTERNAL STATIC PRESSURE (ESP) USING ASHRAE DUCT.

# FIRE FIGHTING SYSTEM

IN FIREFIGHTING SYSTEM, (NFPA) HELP ME TO DETERMINE PIPES SIZE, MY PROJECT IS CLASSIFIED AS ORDINARY HAZARD, BY CODE THE DESIGN AREA (D.A) = 140 M<sup>2</sup>. SOME CALCULATIONS CONCLUDE THE TOTAL SPRINKLERS. I USED PENDENT SPRINKLER. THERE ARE MANY TYPES OF GLASS BULB DEPEND ON THE COLOR. I PREFER TO USE THREE TYPES OF PUMPS IN MY PROJECT. IF THERE IS A FRACTURE OR LEAK IN A CERTAIN PLACE, IT MEANS THAT THE PRESSURE HAS DROPPED BY 1% TO 2% SO I PUT A JOCKEY PUMP.

IF THERE ARE MORE FRACTURE AND JOCKEY PUMP CAN'T COMPENSATE THE LACK OF WATER, THEN THE ELECTRICAL PUMP TURNED ON. IF THERE IS NO ELECTRICITY, THE DIESEL PUMP WILL STAR. THE FLEXIBLE PIPE CONNECTOR ABSORBS VIBRATION FROM PUMP.

## PERSONAL INFO

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