The most visible impact of melting ice is the subsequent rise in global sea levels. As ice from glaciers and polar ice caps melts and adds water to the oceans, coastlines face the threat of increased coastal erosion, inundation of low-lying areas, and greater vulnerability to storm surges. Small island nations and densely populated coastal regions are particularly at risk.

– Climate Feedback Loops:

Ice melting contributes to climate feedback loops, exacerbating global warming. Ice reflects sunlight, known as the albedo effect, helping to regulate the Earth's temperature. However, as ice melts, dark surfaces like open water or exposed land absorb more sunlight, leading to further warming and accelerated ice melt. This positive feedback loop intensifies the effects of climate change.

– Disrupted Ocean Circulation:

Melting ice impacts ocean circulation patterns, such as the Atlantic Meridional Overturning Circulation (AMOC), which plays a crucial role in redistributing heat around the globe. Freshwater influx from melting ice can disrupt this circulation, potentially altering regional climates and affecting weather patterns. Changes in ocean currents can also impact marine ecosystems and fisheries.

– Release of Greenhouse Gases:

Melting ice, particularly in Polar Regions, can release trapped greenhouse gases, such as methane and carbon dioxide, into the atmosphere. These gases contribute to the greenhouse effect, further amplifying global warming. The release of methane, a potent greenhouse gas, from thawing permafrost poses additional concerns for climate change.

– Geophysical Impacts:

The removal of vast amounts of ice from land masses can lead to geophysical impacts. Isostatic rebound, for example, occurs when the weight of ice is removed, causing the land to gradually rise or sink. This process can alter local topography, potentially affecting infrastructure, ecosystems, and geological stability.

**Conclusion**

The consequences of melting ice on the Earth's surface are multifaceted and far-reaching. From ecosystem disruptions to rising sea levels, climate feedback loops, disrupted ocean circulation, greenhouse gas release, and geophysical impacts, the effects of melting ice demand urgent attention and concerted global efforts to mitigate climate change. Understanding these impacts is crucial for developing effective strategies to adapt to and mitigate the consequences of melting ice on our planet.

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# MECHANICAL AND ELECTRICAL SKILLS THAT CIVIL ENGINEER SHOULD LEARN

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**Abstract**: This study discusses some aspects of mechanical and electrical engineering that are closely related to civil engineering, most notably the design and selection of the appropriate diameter of the electrical wire, as well as the size of the appropriate refrigeration and air conditioning devices. This is the information that the civil engineer needs to make the appropriate decision in the paragraphs that include such aspects during implementation.

**Key words**: self-concept, adaptation, university students, Information Technology, online

platforms, virtual communities, e-learning, career guidance, Republic of Yemen.

## Introduction

As it is known, the civil engineer must be a project manager proficient in all aspects of the civil, mechanical and electrical technical work. In order to be a successful engineer or manager [1].we will learn about some of the most important mechanical and electrical aspects that a civil engineer should be familiar with in addition to his skills. One of the most prominent skills that a civil engineer should be able to deal with is calculating the diameters of electrical wires according to the loads of the existing devices [2]. In addition to some mechanical skills, especially with regard to refrigeration and air conditioning, this means designing and choosing the appropriate air conditioning system or the size of the air conditioner according to the dimensions of the building [3].

## Results and discussion

Criteria for defining the kind of conductor. Several standards often apply to the types of electrical conductors and cables used in electrical systems, such as:

a. Installation location and extension method.
b. Conductor's exterior temperature.
c. The enormous capacity of linkages and cables.
d. Type of electrical network.
e. Approved standards for electrical systems based on local or international norms.

Steps to Design an Electrical Cable Section: This approach is appropriate for static loads, which are those without motors (such as lighting circuits or heaters). The suitable part of the wire and breaker is chosen using the methods below:

1. Determine the load current IL (Current Load).
2. Select a circuit breaker (CB) with a rated current of at least 1.25 times the load current (IL).
3. If necessary, use de-rating factors to calculate the cable's thermal rating (Icorrected).
4. Select the cable such that its rated current is larger than the corrected current computed in the previous step and greater than the breaker current. and greater than the breaker current CB calculated in the second step.

In general, two conditions must be met: the cable current must be greater than the breaker current, and the cable current must be greater than (I corrected). Determine the (single-phase) cable clip as Example: Choose the appropriate cable and breaker CB to supply a 1500W single phase load, with a Power Factor equal to 0.82, given that the operating voltage is 220 volts? the solution:

1. We calculate the load current: current = power / (power factor x voltage).. I=1500/(0.82×220)=8.31 A
2. Breaker current = load current x 1.25 = 8.31 x 1.25 = 10.39 amps.
3. We choose the closest standard value for the breaker, which is 16 amps.
4. We find the cable current = breaker current / correction factor (0.8) = 16/0.8 = 20 amps
5. From the cable table, we choose the extension method inside a pipe. We find that the appropriate cross-sectional area is 2.5 square millimetres.

To know the required air conditioner for the room at the beginning you should know what's mean the ton? The ton here is the ton of cooling, not the known ton of weight... The cable table for cross-sectional area is Table 1.

Table 1. The cable table for cross-sectional area

| Nominal Cross Sectional Area | Current Rating in Air | |
|---|---|---|
| | Free | In Pipes |
| $mm^2$ | A | A |
| 1.5 | 20 | 15 |

| | | |
|---|---|---|
| 2.5 | 28 | 22 |
| 4 | 37 | 26 |
| 6 | 46 | 33 |
| 10 | 66 | 47 |
| 16 | 87 | 62 |
| 25 | 118 | 81 |
| 35 | 147 | 100 |
| 50 | 179 | 122 |
| 70 | 230 | 151 |
| 95 | 289 | 191 |
| 120 | 337 | 219 |
| 150 | 385 | 252 |
| 185 | 449 | 288 |
| 240 | 542 | 345 |

A ton of cooling is equal to 12,000 British thermal unit (British Thermal Unit). Therefore, you will find it written on an air conditioner with one and a half tons: 18,000 Btu, and on a two-ton air conditioner, 24,000 Btu, and so on. We find in the model number a reference to that, so you find the number consisting of letters, followed by numbers such as 18, 24, and 12, so you know how many tons. From the model number.

Before you buy the air conditioner, first know your needs for the air conditioner:

The equation used is simply = length x width x height x 300...Then we divide the result by 12,000 Where 300 is a cooling unit for one square meter air conditioner, (12,000 units = one ton)

Example: The length is 8 metres, the width is 6 metres, and the height is 3 metres how much air conditioning do we need? Our need for units to air condition the room is 8 x 6 x 3 x 300 = 42300. Then we convert it to tons: Our need in tons for room air conditioning is 42,300 ÷ 12,000 = 3.6.. Therefore, depending on the output, I recommend installing a 3.75-ton or 4-ton air conditioner his calculation works at the maximum temperature of approximately 50 degrees Celsius.

**Conclusion**

We conclude that the civil engineer needs to know how to design and choose the appropriate diameter of the electrical wire or the appropriate size of the air conditioner so that he can make the appropriate decision regarding the electrical and mechanical details.

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# A REVISED MECHANISM ALONG WITH AN ORGANIZATIONAL AND ECONOMIC STRUCTURE TO PROMOTE BUSINESS DEVELOPMENT IN THE STATE OF LIBYA

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**Abstract**: This report proposes a revised mechanism, accompanied by an organizational and economic structure, aimed at promoting business development in the State of Libya. In the aftermath