

# DESIGN METHODS

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## Logic in Architecture

Asst. Prof. Dr. Faris Ali Mustafa  
*Department of Architecture, SUE*

# Logic and Architecture :

- Unlike painting, music, or literature, architecture is the earth. It belongs to the earth as a container of human activities and is therefore part of its existence and itself.
- This essence is reflected in the basic need for shelter buildings that provide shelter and thus architecture contributes to human survival against the hostile forces of nature.

# Logic and Architecture :

Architecture exists in relation to two sets of conditions:

- ❑ On the one hand, the building must respond to fundamental issues such as the need for shelter and for ideas to be symbolized.
- ❑ On the other hand, it must relate to a region, to a specific location, to the topography, to the path of the sun, the variations of temperature...to different needs and aspirations of people.



# Logic and Architecture :

- A civilization can be better understood by its architecture because of the way buildings show the interest of a society, its organization skills, affluence or poverty, the kind of climate and the attitude towards technology and the arts.
- In towns and cities the general structure of a society can be understood through the medium of architecture.....So it becomes the most prevalent mirror of human existence..

# Logic and Architecture :

- This brief introduction raises the importance of (design) as a creative act to achieve outstanding architecture.
- This creative act is mysterious ... a mixture of logic and talents.

# The Logic of Design :

- ❖ Logic is important in Design because both (Logic and Design) are based on the mental process and understanding...
- ❖ We have to learn how to think correctly and this clearly will be reflected in the design process and the outcome of the design.
- ❖ Logic is related to the right thinking in different stages of the design process (analysis, synthesis and evaluation) and so, naturally, logic helps us to take attitude and conclusion. We can't design if we are unable to take attitude.



# The Logic of Design :

- Logic is concerned with how to convey (express, transfer) our thoughts in a logical and correct sequence.
- Thus, we can describe logic as (an art used as a tool to argue correctly with ourselves, engineers, clients and others- and deal with thought in correct and sound sequences).
- For every design problem, there is countless number of solutions and the designer should consider a variety of solutions to solve a problem.

# The Logic of Design

Decision Sequence	Process of Design
<b>Analysis</b>	Collection and classification of data → defining the problems [Ordering and Structuring of Problems]
<b>Synthesis</b>	Setting up possible solutions to the problems [Generation of Solutions]
<b>Evaluation</b>	Critical evaluation of suggested solutions through the act of argument [Choice of the most suitable solution]



# The Logic of Design

**By the act of self-argument or argument with others, you will be directed to the most suitable solution.**

**A properly ordered decision sequence will encourage one to be creative – as wildly creative as possible – during the central phase of synthesis.**

**Like all sciences, we have to train ourselves to think logically ... to create a structure of logic.**

**Only when we know how to use it correctly, it will serve as an effective tool.**

# Informal Logic (Fallacies)

The word “fallacy” used in Logic to refer to a bad argument or a mistake in a piece of reasoning,

In everyday life, “Fallacy” is often used in a slightly different sense, to mean a mistaken belief – misconception (e.g., one may hear a wrong speaking about the fallacy of trust in everyone you meet).

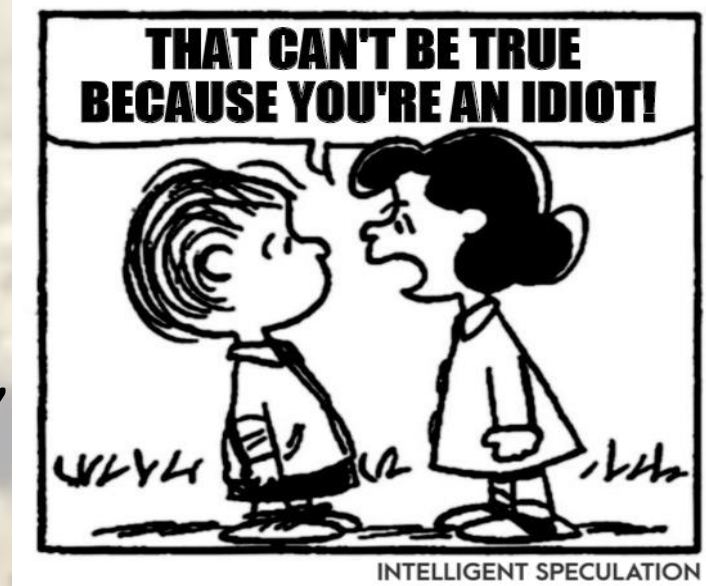
If these two meanings of the word, then we will likely have a tendency to automatically believe that bad arguments will lead to false statements or conclusions.

# Informal Logic (Fallacies)

## 1 - Ad Hominem\* arguments (Attacking the person):

This fallacy occurs when, instead of addressing someone's argument or position, you irrelevantly attack the person or some aspect of the person who is making the argument.

\*Latin expression means "against the man,"



The fallacious attack can also be direct to membership in a group or institution.

### Example:

Student: Hey, Professor Moore, we shouldn't read this book by Freud. Everyone knows he used cocaine.

**Socrates' arguments about human excellence are rubbish.**

**What could a man as ugly as he knows about human excellence.**

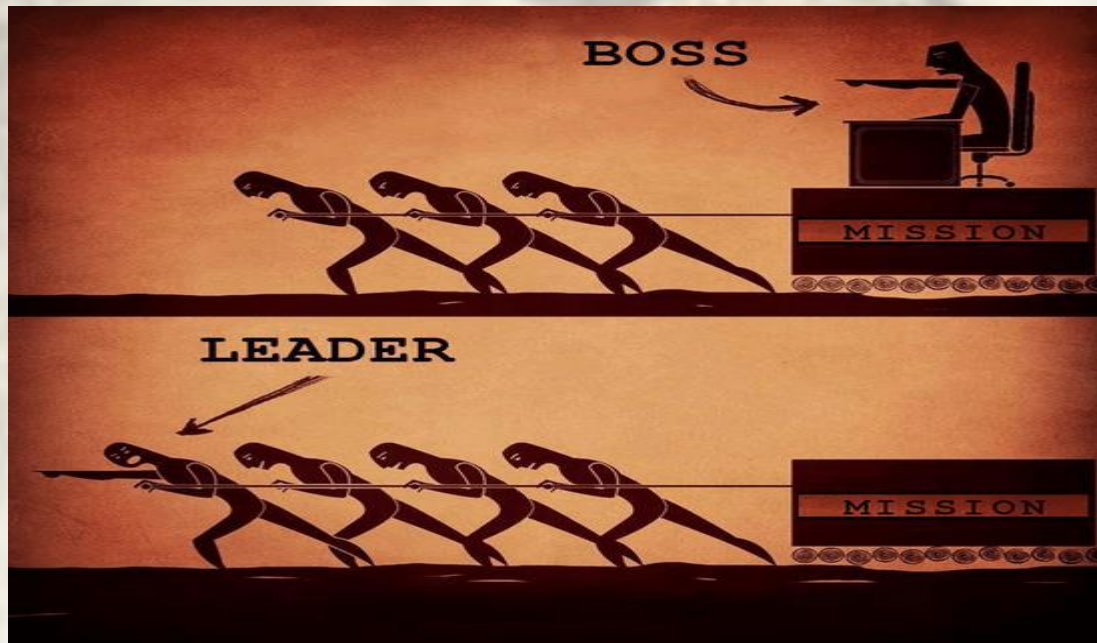


# Informal Logic (Fallacies)

## 2- An appeal to Ignorance:

This fallacy occurs when you argue that your conclusion must be true because there is no evidence against it. This fallacy incorrectly shifts the burden of proof from the person claiming it.

**Example: I thought I had every reason to think that I was doing fine in leading the group; No one complained.**



# Informal Logic (Fallacies)

## 3-Begging the Question:

The fallacy of begging the question occurs when an argument's premises assume the truth of the conclusion, instead of supporting it.

In other words, you assume without proof the stand/position, or a major part of the position, that is in question. Begging the question is also called arguing (controversy) in a circle.

**Example: Minority rights are sacred as much as the rights of majority, because the rights of the majority have no greater value than the rights of the minority.**

**Example: I asked her for a cup of coffee.  
She refused.  
She doesn't like the coffee.**

# Informal Logic (Fallacies)

## 4-Confusion between necessity and sufficient condition:

- A causal fallacy, this fallacy occurs when you assume that a necessary condition of an event is sufficient for the event to occur.
- A necessary condition is a condition that must be present for an event to occur. A sufficient condition is a condition or set of conditions that will produce the event.
- A necessary condition must be there, but it alone does not provide sufficient cause for the occurrence of the event. Only the sufficient conditions can do this. In other words, all of the necessary elements must be there.

**Examples: Who said food keeps us alive? Tom died a few days ago and he was not short of good food.**

**Example: Oxygen is necessary for combustion**

**= If there's combustion then there's oxygen**

**= If there's no oxygen then there's no combustion**



# Informal Logic (Fallacies)

## 5- The False Dilemma:

When you think about a situation and you haven't considered all relevant possibilities, you commit the fallacy of a false dilemma.

### Example:

- **America: Love it or leave it.**
- **Since there is nothing good on TV tonight, I will have to sleep.**

# **Informal Logic (Fallacies)**

## **6- Equivocation (ambiguousness):**

The fallacy of equivocation occurs when a key term or phrase in an argument is used in an ambiguous way, with one meaning in one portion of the argument and then another meaning in another portion of the argument.

### **Example:**

**Noisy children are a real headache. Two aspirin will make a headache go away. Therefore, two aspirin will make noisy children go away.**

# Informal Logic (Fallacies)

## 7- Irrelevant Authority:

The fallacy of irrelevant authority is committed when you accept without proper support for his or her alleged authority, a person's claim or proposition as true.

The alleged authorities should only be used when the authority reports its area of expertise, the authority reports the facts about which there is agreement in this area, and you have reason to believe that it can be trusted.

Alleged authorities can be individuals or groups. The attempt to attract the majority or the masses is a form of irrelevant authority. The attempt to attract an elite or select group is a form of irrelevant authority.

**Example: Brad Pitt was seen wearing Designer Bob's sunglasses, so they must be the best sunglasses to wear.**

**Example: Pacifism is a good idea because the brilliant scientist Einstein supported it.**



# Informal Logic (Fallacies)

## 8- Faulty Analogy:

This fallacy is the assumption that since two things are similar in one or more ways, they are necessarily similar in some other ways.

### Example:

**Making people register their own guns is like the Nazis making the Jews register with their government. This policy is crazy.**

# Informal Logic (Fallacies)

## 9- Questionable Cause:

This fallacy occurs when causal communication is assumed without evidence. Claims on a causal relationship are often based on mere relationships.

The occurrence of one event after another or the occurrence of events simultaneously is not evidence of a causal relationship.

### Examples:

- *We never had a problem with this elevator until you moved into the building.*

# Informal Logic (Fallacies)

## 10 - Straw Person:

This fallacy occurs when, in attempting to refute another person's argument, you address only a weak or distorted version of it.

A straw person is a misrepresentation of the opponent's position or a competing product to illustrate a person's argument or product as superior.

**This fallacy occurs when the weakest version of an argument is attacked while the stronger one is ignored.**

### Example:

It's shocking to me that people who oppose the death penalty believe that the lives of convicted murderers/killers are more important than the lives of their victims. This alone shows that the opponents of the death penalty are wrong.



# Informal Logic (Fallacies)

## 11-Slippery Slope:

In a slippery slope argument, a work path is rejected because, with little or no evidence, one insists that it will lead to a chain reaction resulting in an undesirable end.

The slippery slope includes accepting a series of events without direct evidence that this path of events will occur.

## Examples:

- We can't permit the sale of marijuana by doctor's prescription, because that will lead people to believe it's an acceptable drug; this will open the floodgates to the complete legalization of the drug for use by every pothead in the country.
- Today it is ten minutes late, tomorrow an hour late, and then one day it will stop appearing.

# Informal Logic (Fallacies)

## 12- Unwarranted Generalization: (Unjustified)

This fallacy occurs when we make a generalization on the basis of insufficient evidence.

**This may occur when we rely on too small of a sample or an unrepresentative sample to support the generalization.**

### Example:

**Environmental health is now a major concern for the American people. About 5,000 students, male and female, in 30 colleges and universities across the country were asked to prioritize the three public issues of greatest interest to them. Over 4000 ranked the environment first...**