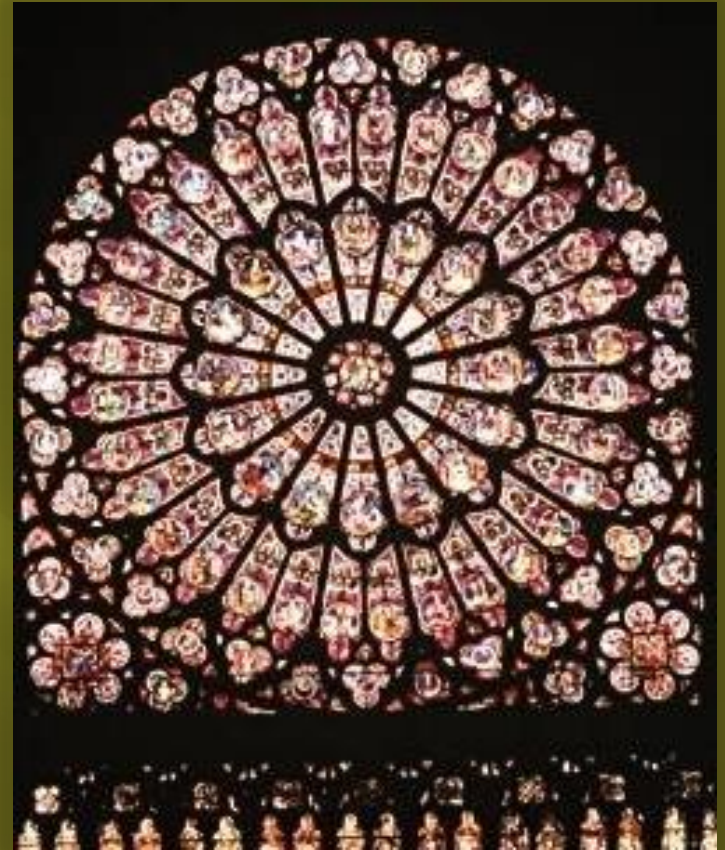


Gothic Architecture

“ the ultimate achievement
of the age of faith ”

Frank Lloyd Wright





music:
Rock; Heavy
metal
combined with
punk

‘Gothic’

font:
Heavy angular
typeface

mannerism:
Crude
,uncivilized
and barbaric



fashion:
black clothes, heavy
silver jewelry, black eye
makeup and lipstick,
and often pale face
makeup



literature:
characterized by
gloom and darkness



history:
Ancient Germanic
tribe.

Gothic Architecture

1) background

• Romanesque Gothic Renaissance.

• *'Gothic'* (label of the renaissance)
-means barbarous or uncivilized

-originally *'the French style'*

• 12th -16th century Europe.

-religion

Deep and enduring devotion in design and construction of churches

-politics and economy

A multitude of city states and kingdoms with autonomous rulers, who competed for wealth and trade,

Cathedral construction had economic benefits



12th – 16th century Europe

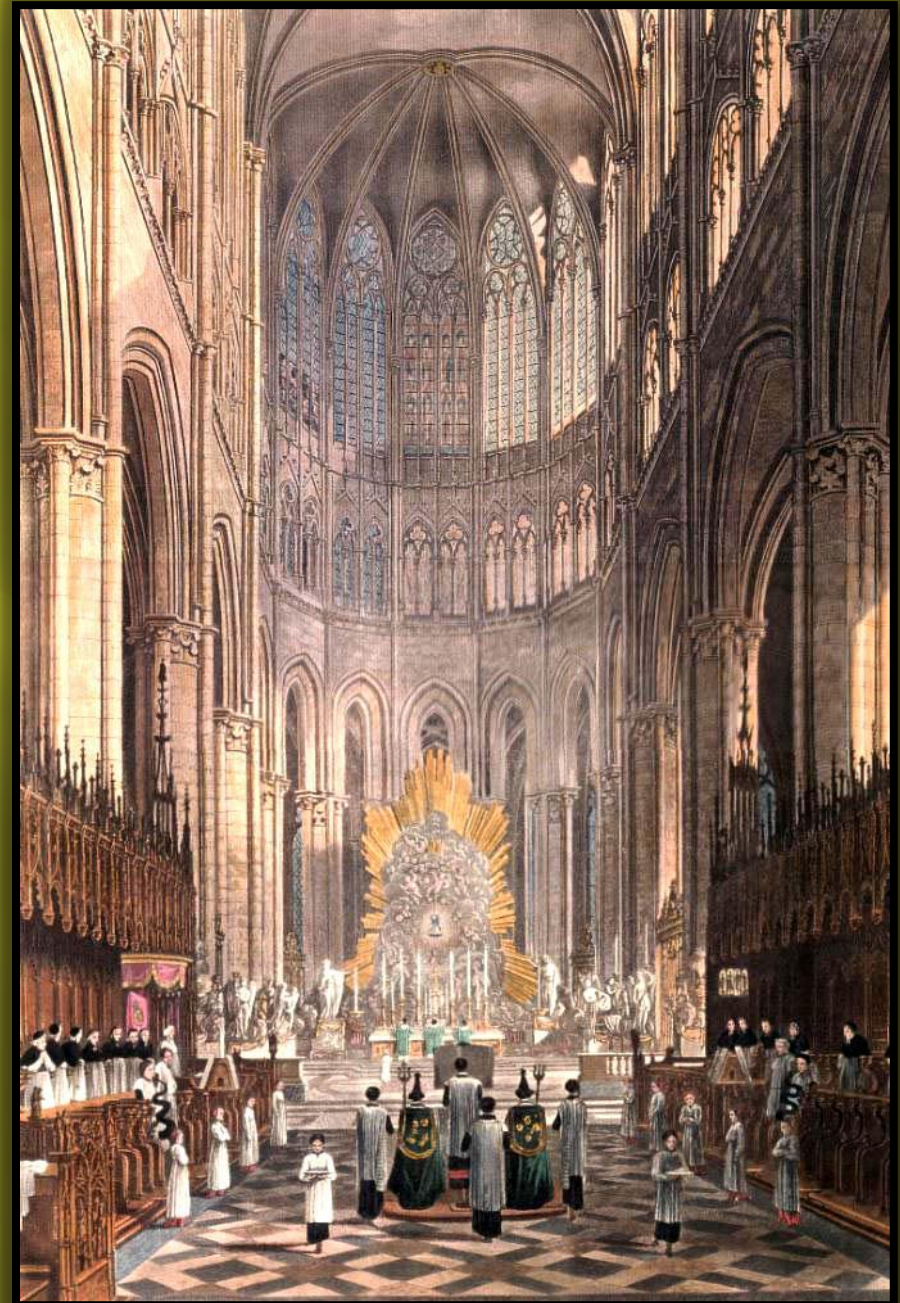
Gothic Architecture

2) Ideology

- ▣ began with a symbolic vision as an end
everything else became a means to an end

Formal Transcendence.

- Inspired and calculated creation of transcendental/mystical/inspirational reality.
- Christian theology: **scholasticism**, tried to reconcile logic (philosophy) with faith (Christianity)
- As the house of the lord the cathedral must attain an outer worldly appearance'
- Creation of **irrational effects in the interior** to induce awareness of supernatural presence.



Amiens cathedral, interior

Gothic Architecture

3) Influences

Technological developments in vaulting

About 1100, the builders of Durham Cathedral in England invented a new method called rib vaulting.

Eastern influence

- returning crusaders from Spain.
- Islamic pointed arch, Decorated carved stone screens, decorative motifs

Abbot sugar's St. Denis cathedral

-Dionysian writing "through the contemplation of physical beauty we are led to divine reality" brought sugar close to the Christian theme of God as light.

St. Denis cathedral, Paris



Gothic Architecture

4) characteristics

- **Formal features** : create the transcendental atmosphere.
- Space
- Light
- Line
- Geometry
- **physical features**: make possible the visual effects.
- Pointed arch
- Rib vaulting
- Flying buttresses

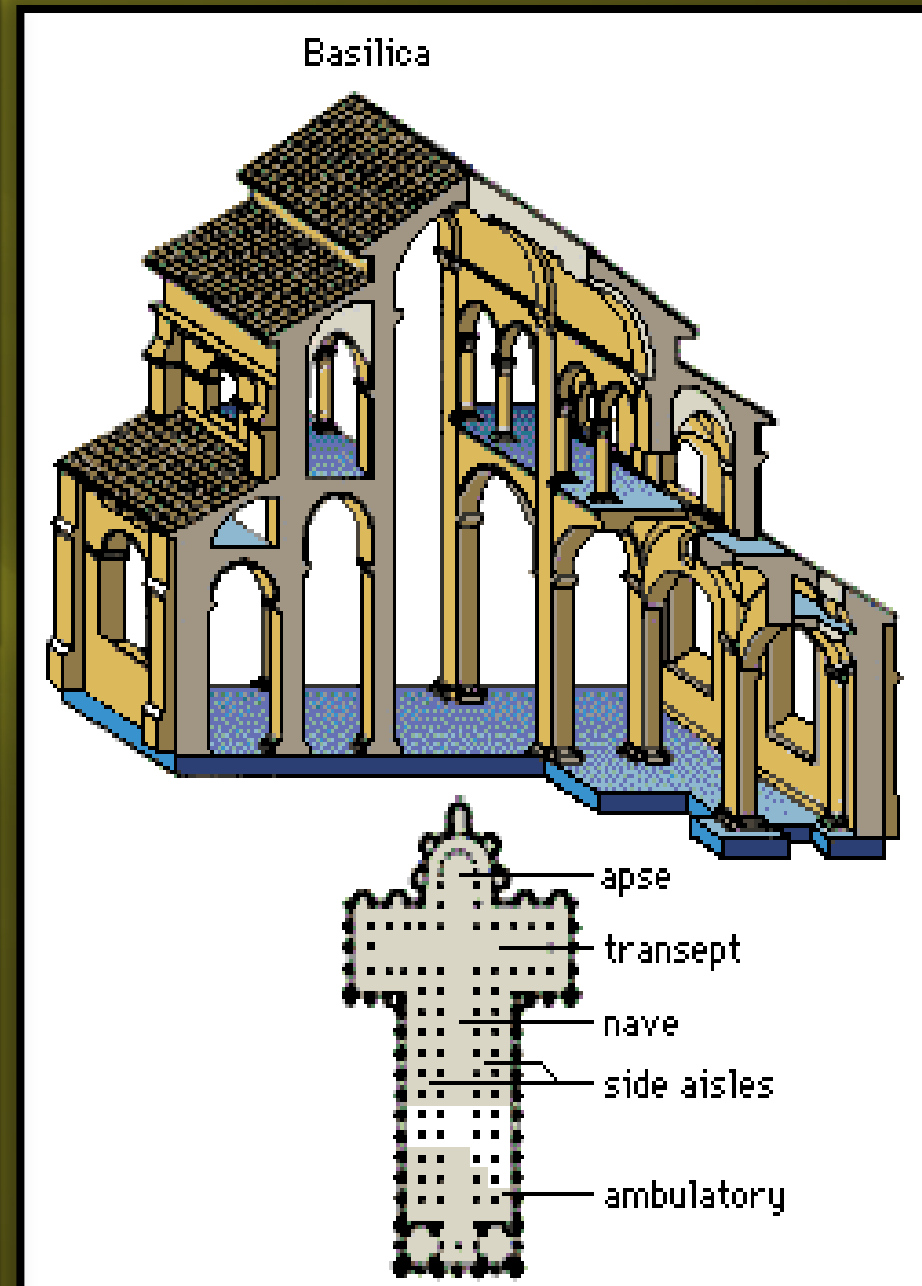


st.chapel interior, paris

Gothic Architecture

5) vocabulary

Apse	Ambulatory
Nave	Galleries
Cruciform	Clearstory
Transept	Arcades
Aisles	



Gothic Architecture

vocabulary

Piers

Tri-forum

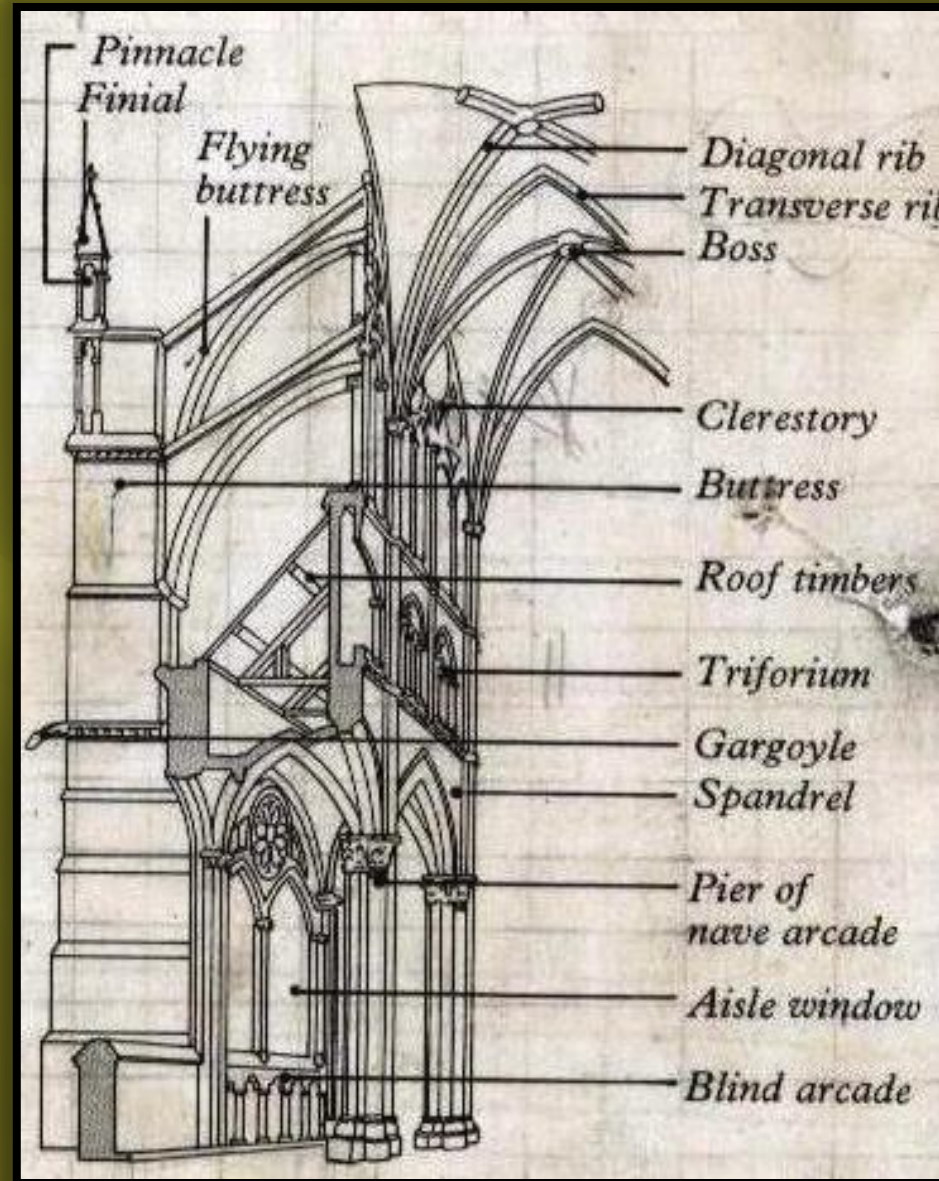
Spires

Spandrels

Niches

Gargoyles

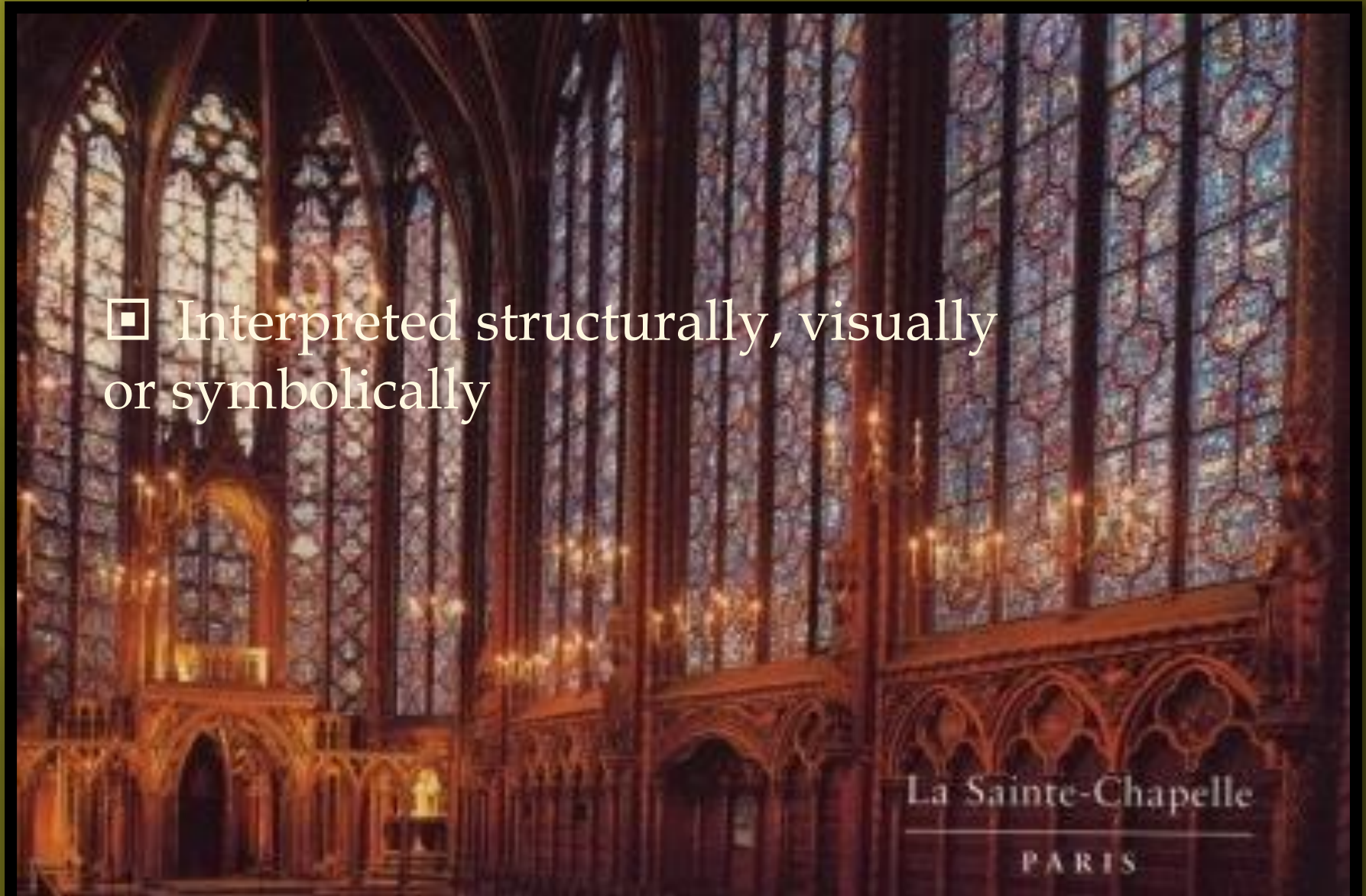
Statuary



Gothic Architecture

6) Formal features

▣ Interpreted structurally, visually or symbolically



La Sainte-Chapelle

PARIS

Gothic Architecture

Formal features

•Space.

- the cathedral interiors were not built to the human scale, with the intention of creating over whelming (humbling) space.

-Irrational effects were created.

•light.

-“Light seems to triumphs/achievements over matter.” a glowing luminosity.

-The walls seem to dissolve with no obvious explanation inspiring awe.

-the skeletal flying buttresses opened laterally to high arcades and giant clearstories.

•line.

-Vertical lines give strength and height to a space.

-Verticality signifies detachment from the earthly reality (the horizon line).

-the space not only soars upward but also drives forward down the nave.

•Geometry

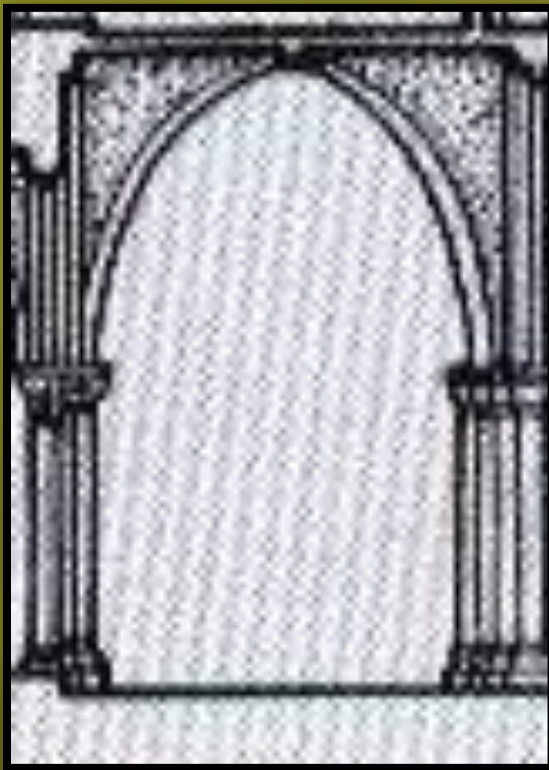
- Played a major role in the design. construction and decoration.

- Some examples could be the pointed arch, ribbed vaults and the tracery and rose windows that adorned the vast openings.

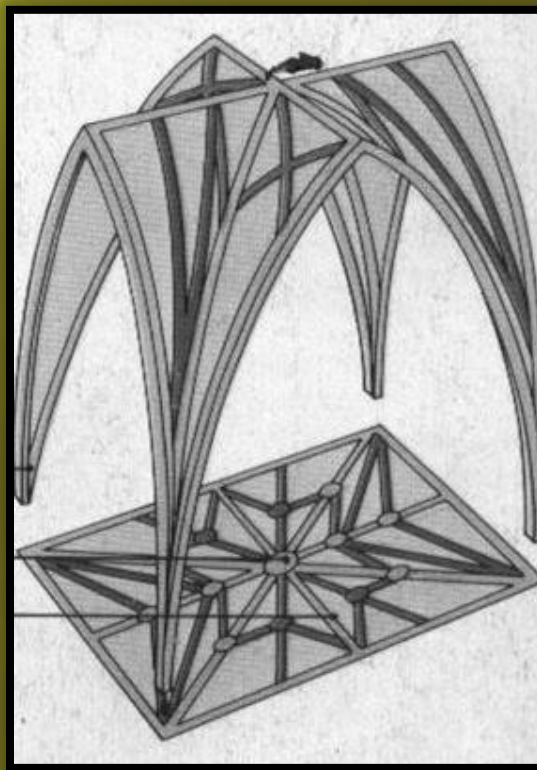
Gothic Architecture

7) physical features

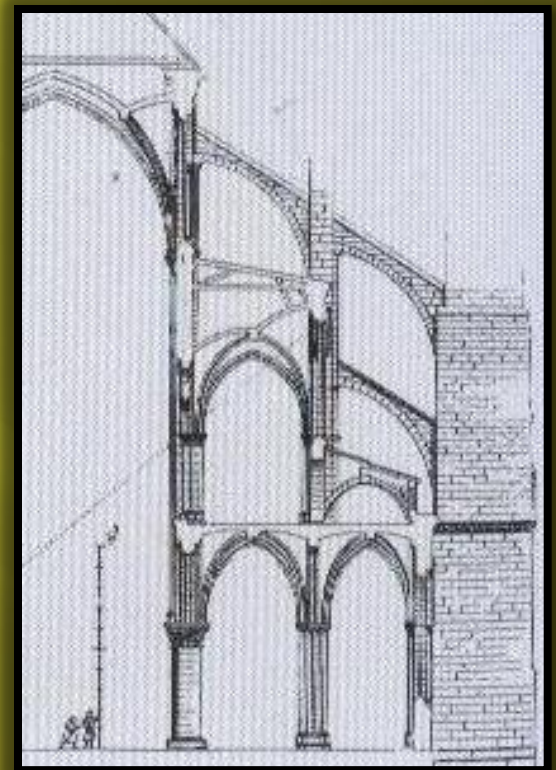
Heralded the stylistic change that broke the tradition of massive walls with small window and gave the churches powerful new character.



Pointed arch



Ribbed vaults



Flying buttresses

Gothic Architecture

7.1) Pointed arch

- **stylistic:**
all gothic openings: windows, doorways, galleries, arcades and niches

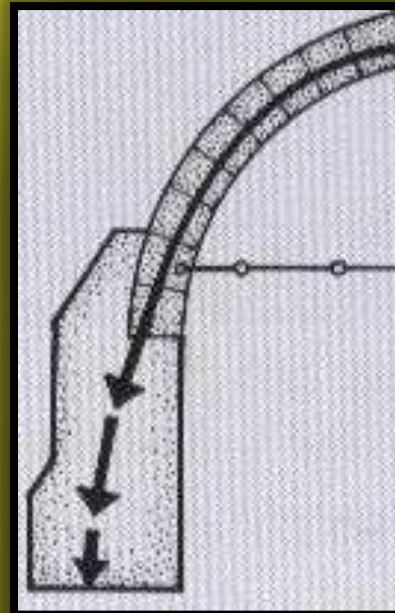
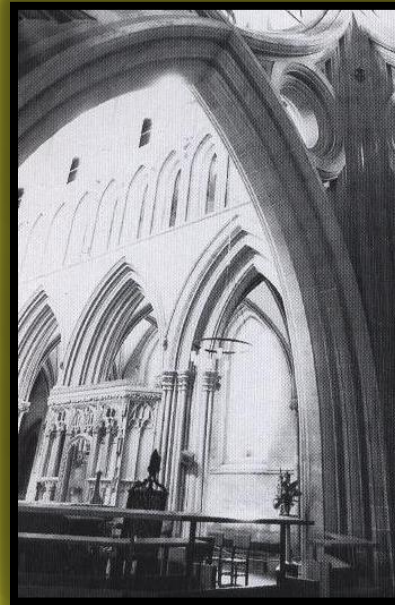
- **Roof irregular plans**

- **Height to width ratio:**

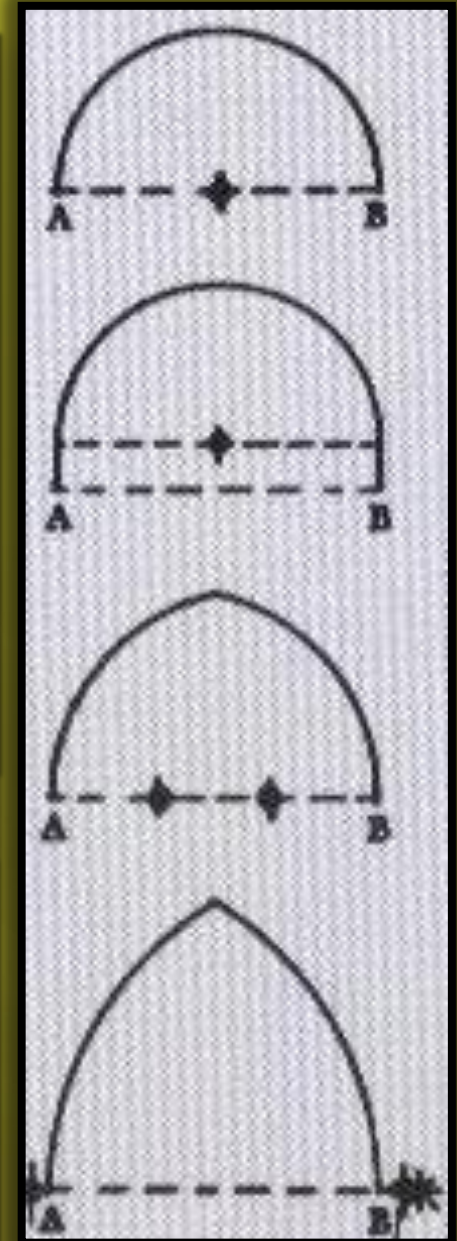
Great heights could now be achieved in very narrow spaces achieving verticality. (e.g. the highest; *cologne cathedral* 3.6: 1)

- **Load transfer**

-the pointed arch unlike the normal semi circular arch has unresolved lateral forces at the springing point which requires either side support or buttressing.



load transfer



Depressed

Gothic Architecture

Types of Pointed arch

- **Lancet arch.**

- England
- long narrow opening with steeply pointed arch
- Clusters of 3 and 5.

- **Equilateral arch.**

- Italian
- radius = width of opening

- **Flamboyant arch.**

- French
- four centered arch, structurally weak
- not used for vaulting

- **Depressed arch (flattened arch)**

- English
- Wider than its height for wide spaces



lancet



equilateral



flamboyant

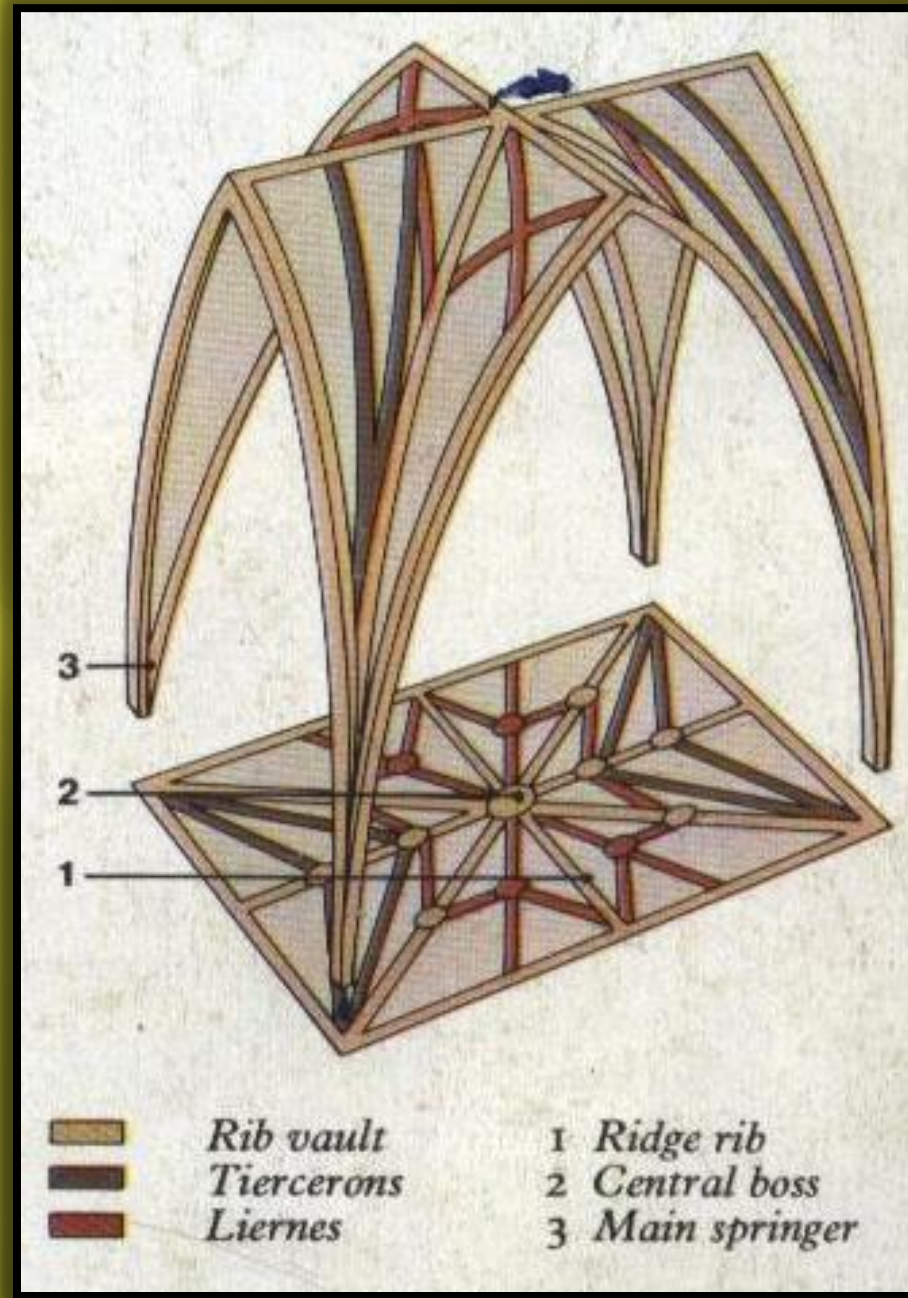


Depressed

Gothic Architecture

7.2) Ribbed vaulting

- **structural solution**
 - ribs act to concentrate the entire weight and thrust at the corners of the bays.
 - the reduced more concentrated loads permit more slender piers and thus larger windows in the nave walls, provided there is sufficient buttressing.



Gothic Architecture

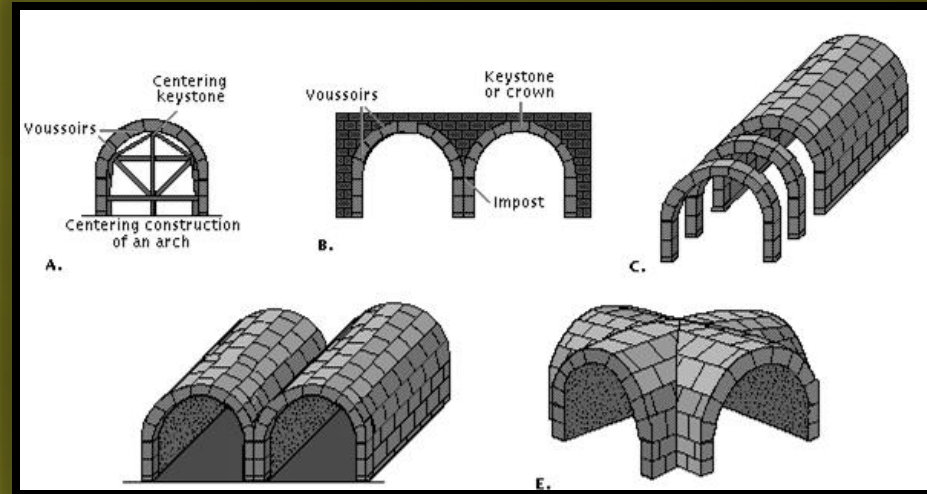
Ribbed vaulting (Contd...)

•Construction:

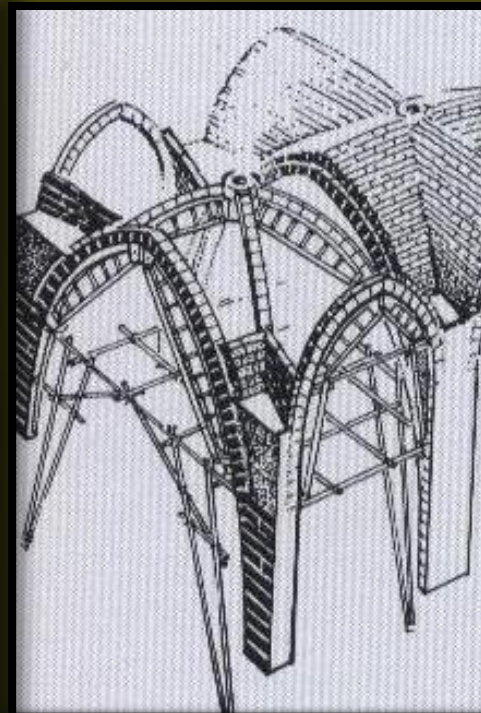
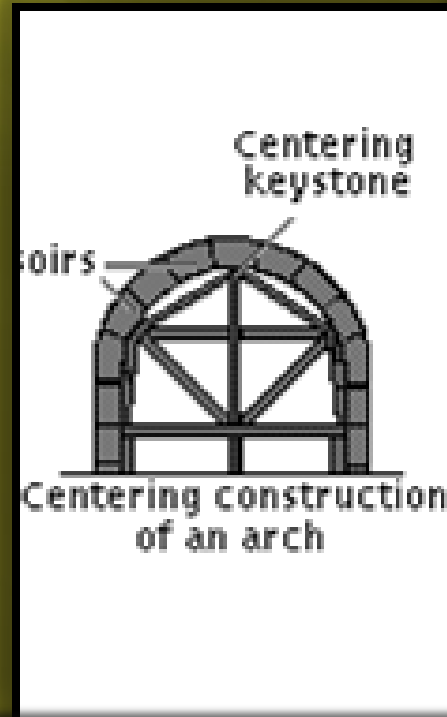
- a vault requires first a temporary carpentry structure, called centering, which supports the masonry until the shell has been completed and the mortar has set..

-They built two intersecting diagonal arches across the bay, and then found ways to fill out the shell resting on secondary centering.

-Ribs did not modify the structural characteristics of the groin vault, but they offered constructional advantage and emphatically changed the vault's appearance. Ribs later began to be used for articulation of ceilings.



Constructional advantages



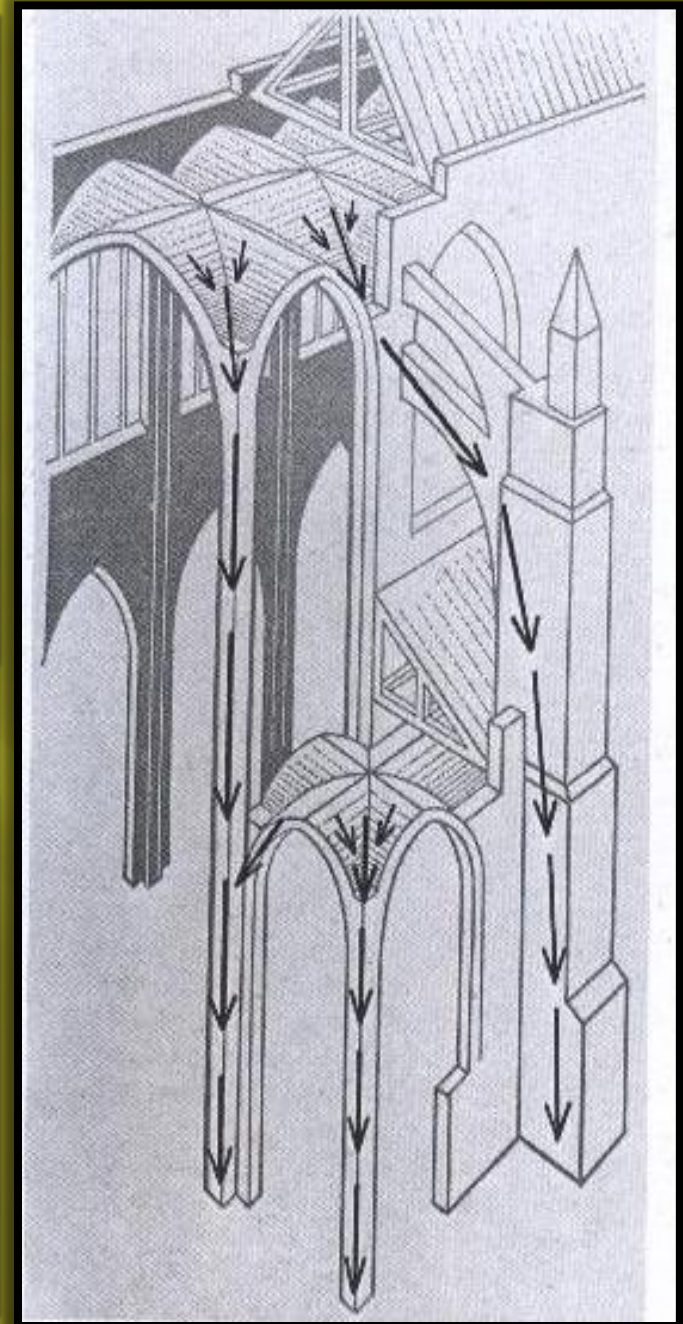
Gothic Architecture

7.3) Flying buttresses

- A bold innovation.

- Since the lateral force created by the ribbed vaults is gathered and localized in small areas, a counter force is needed only at those areas.

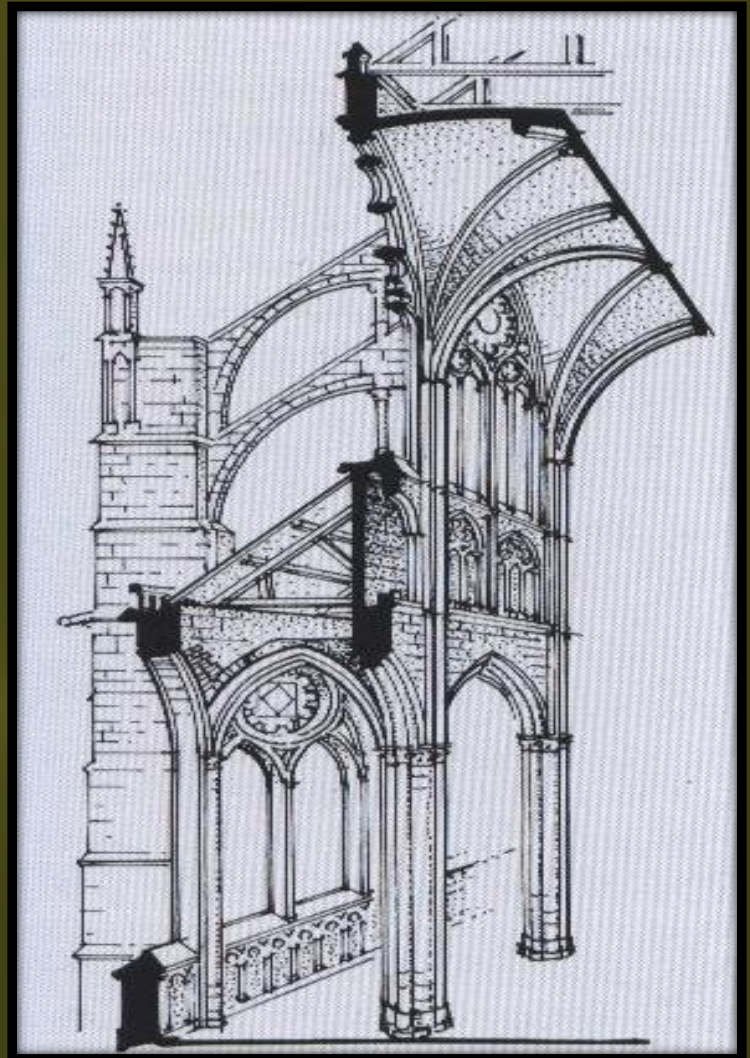
- Arches **fly** from the free standing colossal piers to **buttress** (absorb) the forces and channel them safely to the ground without blocking the entry of light into the interiors.



Gothic Architecture

Exemplary cathedrals

Aerial view of Amiens cathedral



section of Amiens flying buttresses
St. Amiens cathedral, Paris

Gothic Architecture

8) Decoration

•symbolism:

- The Gothic cathedral represented the universe in microcosm.
- Each element was intended to convey a theological message: the great glory of God.
- The mathematical and geometrical nature of the construction is an image of the orderly universe.
- The statues, sculptural decoration, stained glass and murals incorporate the essence of creation.
- Great and intricate detailing are a staple of this style.



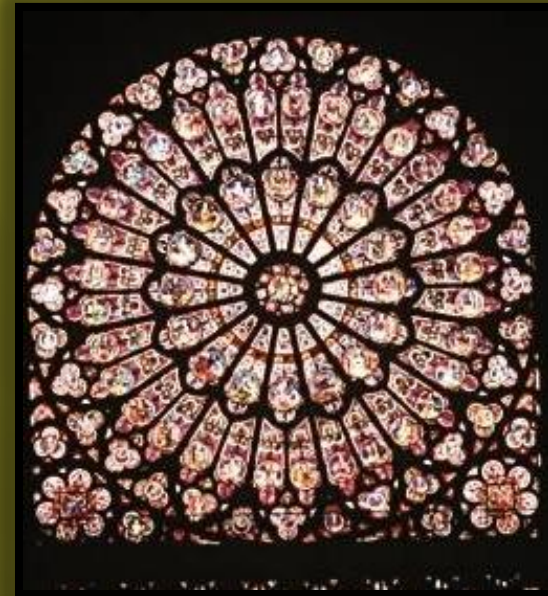
Gothic Architecture

e.g. the rose window

-The rose window was a decorative element that adorned the west elevation in gothic cathedrals.

-There were many variations on the rose window depending on the period, location and dedication of the churches.

-Complex geometry is used in decoration and symbolism, a typical characteristic of gothic architecture



Gothic Architecture

Exemplary cathedrals

• FRENCH GOTHIC CATHEDRALS

most of the innovations used in gothic architecture were actually made outside France;

France remains the birth place of gothic architecture 'the French style'

-the conceptual fibers were born Here

-the first major application were Made here.

-three significant eras

-early French gothic

-high French gothic

-rayonnant (late gothic)

Materials used were the abundant limestone (very fine, white)



Gothic Architecture

Exemplary cathedrals

• St. Denis cathedral, Paris

-The first definitive gothic cathedral, the traditional burial site of the kings of France, royal patronage.

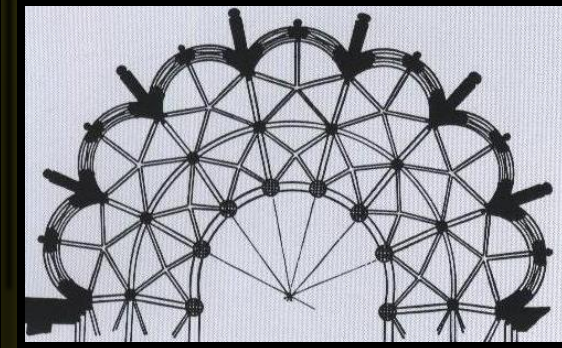
-sugar's description: "the church would shine with wonderful and uninterrupted light of most sacred window pervading the interior beauty"

Had Romanesque influences.

style : **early French gothic**

characteristics: unadorned rib torus profile

Special features: double ambulatory
Of the choir.



St. Denis cathedral, paris

Gothic Architecture

Exemplary cathedrals

The vaulted gothic nave



the east facade

St. Denis cathedral, Paris

Gothic Architecture

Exemplary cathedrals

- **Notre dame cathedral, Paris**

-The building was significantly larger than its predecessors.

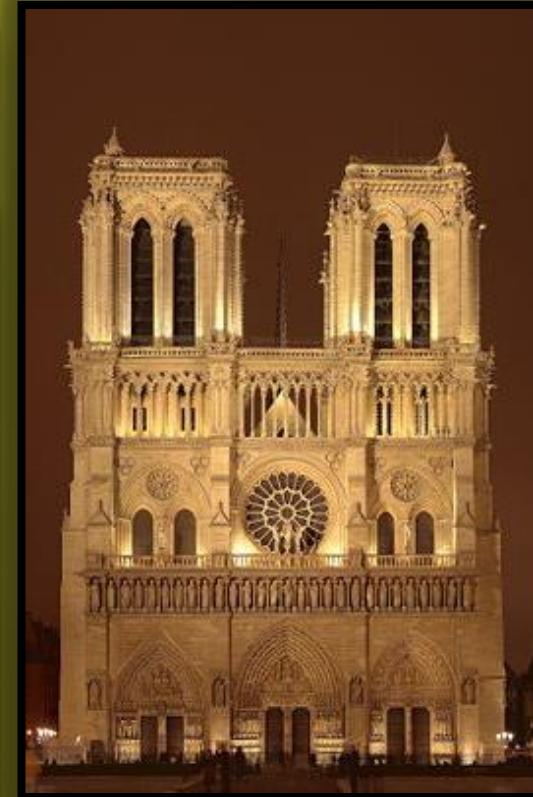
-the interior achieved overwhelming effects in immensity and energy

style : **transitory phase**

characteristics: the tiers in the façade
Created a new language on the facades. Each unique section coming together to give unity to the façade
as well as accentuating verticality.

Hieght: **35.5m**

Special features: **first use of flying buttresses.(partial use)**



Notre dame cathedral, Paris

Gothic Architecture

Exemplary cathedrals

South wall of the nave



The black Madonna

Notre dame cathedral, Paris

Gothic Architecture

Exemplary cathedrals

'The illustrious triad'

- **Chartres cathedral, Paris**

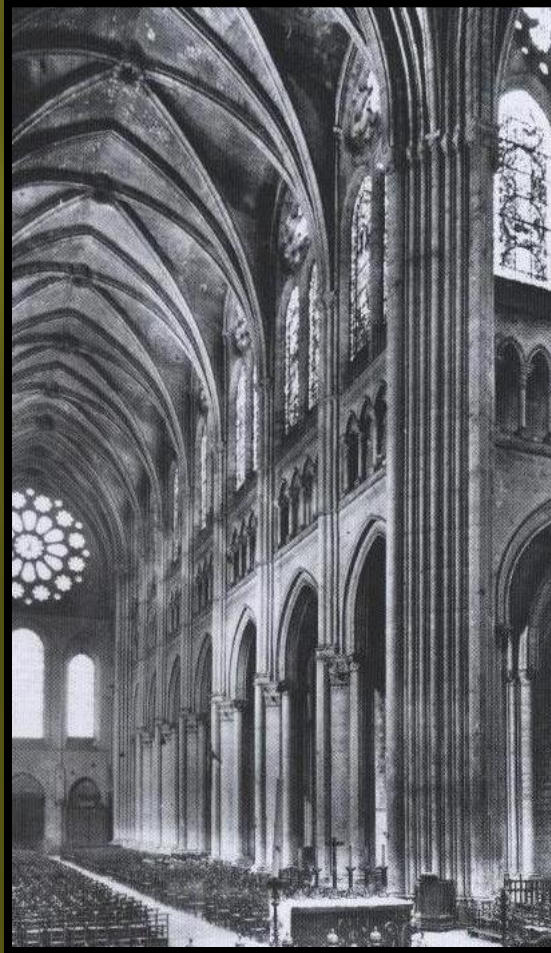
- transformation through reduction and synthesis
- the clear dynamic lines of gothic style emerged without the distracting detail.
- the gallery was eliminated extension of the clearstory and gallery.

style : **High French gothic**

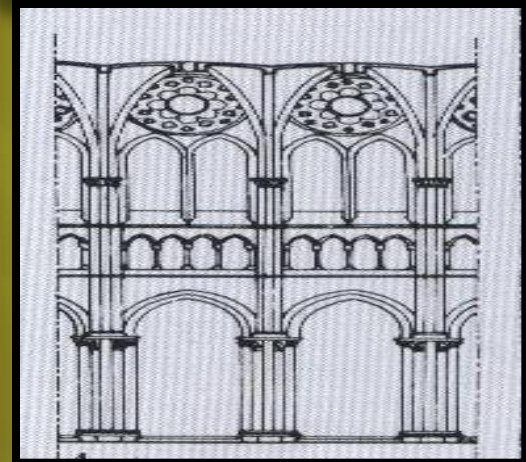
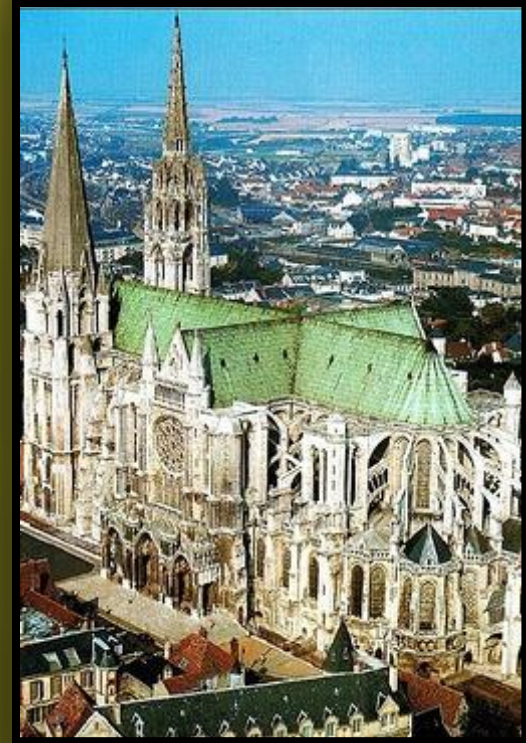
characteristics: **tracery, heavy exterior**

Height: **38.5m**

Special features: **sole use of flying buttresses, tracery**



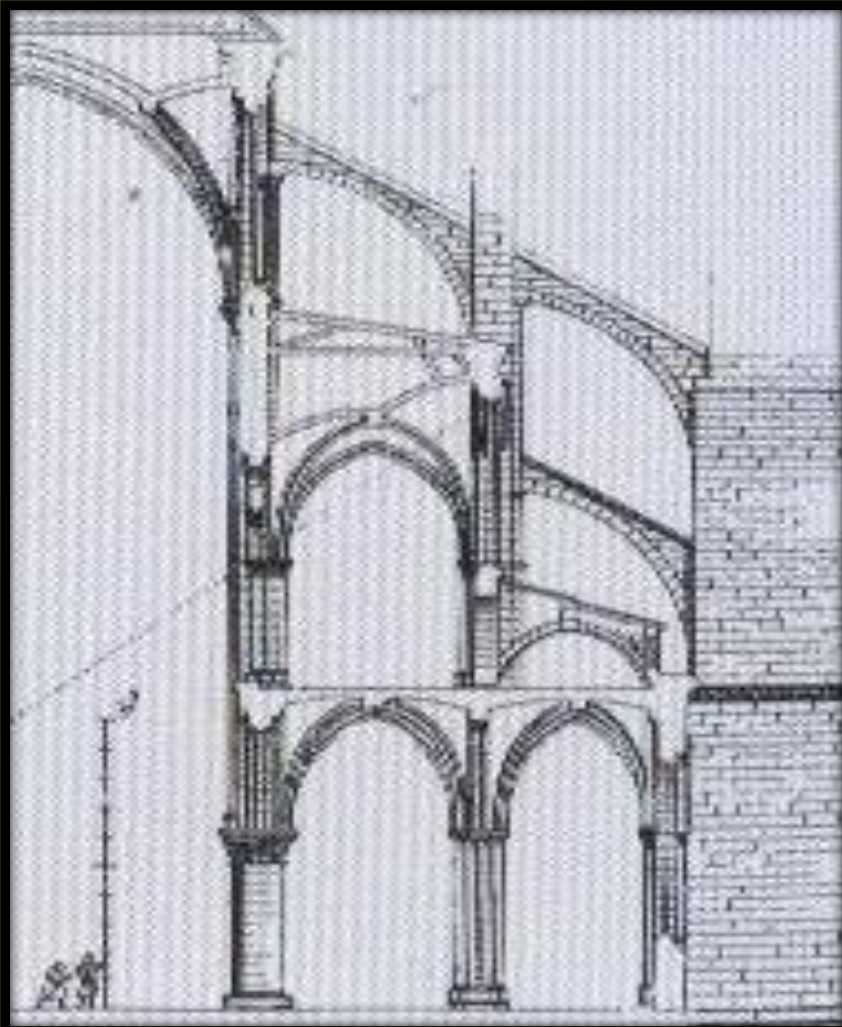
Chartres



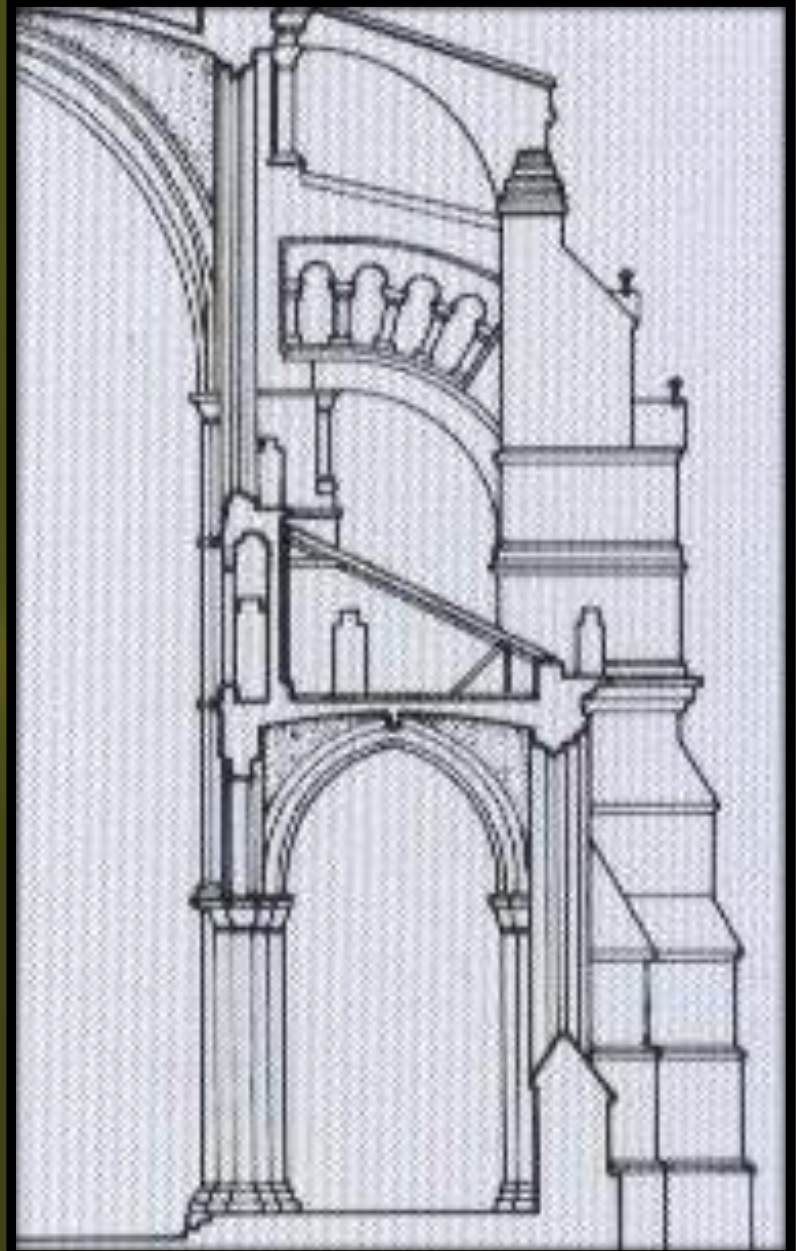
cathedral, paris

Gothic Architecture

Exemplary cathedrals



Notre dame cathedral section



chartres cathedral section

Gothic Architecture

Exemplary cathedrals

• Reims cathedral, Paris

- the model is transformed.
- What ever is hard, bare and massive in cartres is made soft, skeletal and elegant in Reims.

More articulate forms of tracery appears.
Filling the upper nave walls and completing the skeletal Concept in the elevation.
-Decorated all around with sculptures and gargoyles/ornaments.

style : **High French gothic**

Characteristics: articulation, naturalization and softening.

Height: **42.2m**

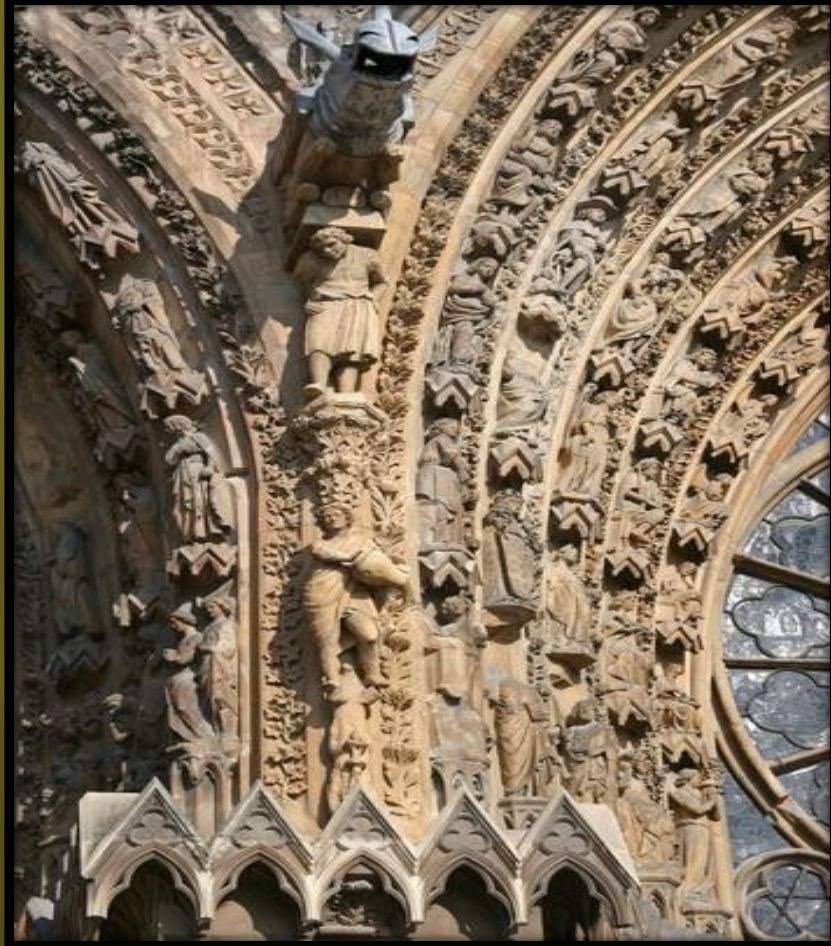
Special features: first bar tracery



Reims cathedral, paris

Gothic Architecture

Exemplary cathedrals



Details of sculptures



Rose window

Reims cathedral, England

Gothic Architecture

Exemplary cathedrals

- **Amiens cathedral, Paris**

a great difference is achieved in perceived scale through a new h:w ratio of 3:1

The ultimate realization of gothic
Ideology, scholastic rationalism
Definitive of the era.

style : **Rayonnant (late French gothic)**

Characteristics: thinness of walls
attenuation of columnar elements
and an over all wiry/strong energy

Height: **49**

Special features: unequal tower



Amiens cathedral, paris

The nave labyrinth

Gothic Architecture

Vault at the transept crossing



Amiens cathedral, Paris

Gothic Architecture

Exemplary cathedrals

• ENGLISH GOTHIC CATHEDRALS

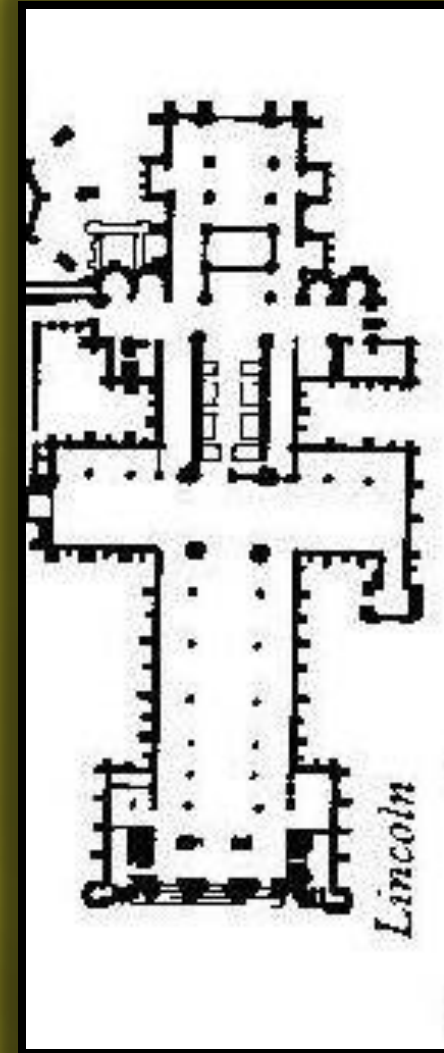
-tend to be less compact than those of the French.

Long and narrow, they have boldly projecting transepts sometimes double and a square east end instead of an apse more complex Vaulting.

Gothic architecture in England has three main phases:

- **early English*
- **decorated (curvilinear)*
- **perpendicular*

materials were: coarse limestone, red sandstone, marble.



Gloucester cathedral interior

Gothic Architecture

Exemplary cathedrals

- **Salisbury cathedral**

With its thick walls Salisbury eschews/differs the French gothic

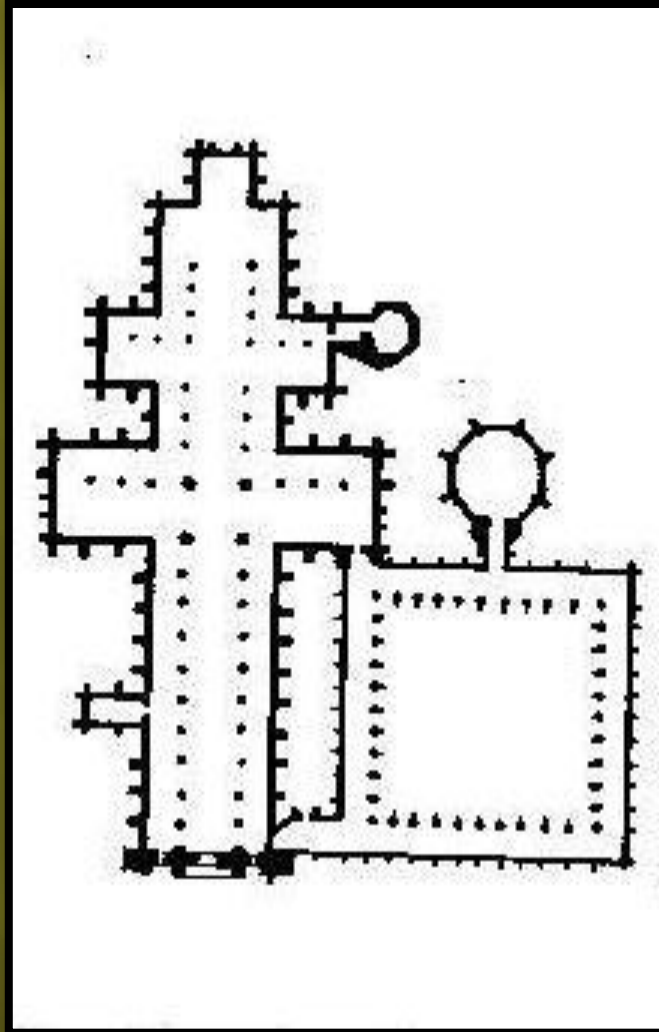
The interior nave wall dissolves into a textile series of small bands of arcades and niches/ places for statuary.

style : **Early English gothic**

Characteristics: influence of French model is apparent as in all early English gothic but here a break is made.

Height: the highest spire in England

Special features: double transepts



Salisbury cathedral, England

Gothic Architecture

Exemplary cathedrals



Salisbury cathedral, England

Gothic Architecture

Exemplary cathedrals



Westminister abbey, england

Gothic Architecture

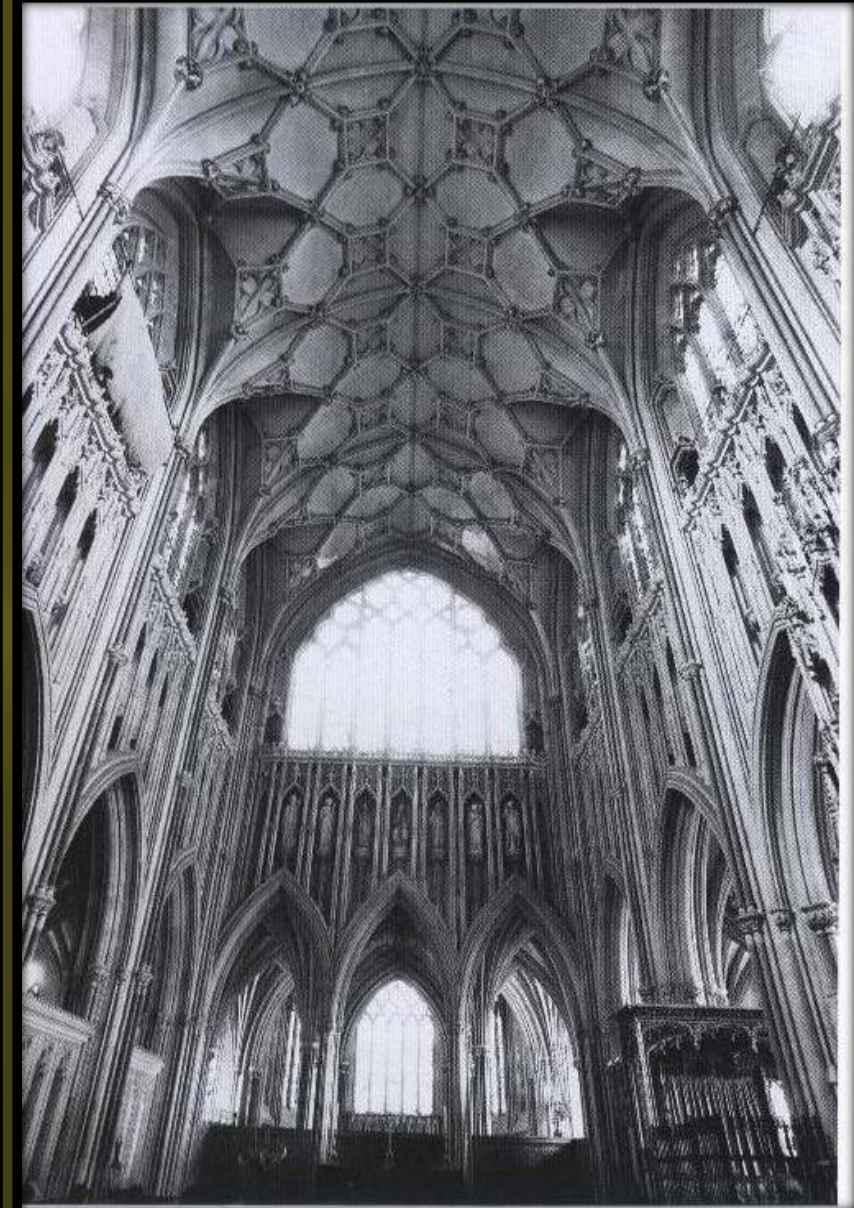
Exemplary cathedrals

- wells cathedral
- adherence to French tracery is lost. Vaulting and pier formula is lost.
- More freedom less geometry. More fantasy, ornament, drama and movement.
- The vault forms a net like pattern, accentuated by intricate boxes of blind curvilinear tracery

style : **decorated (curvilinear)**

Characteristics: decoration, statuary/sculapural and free lines

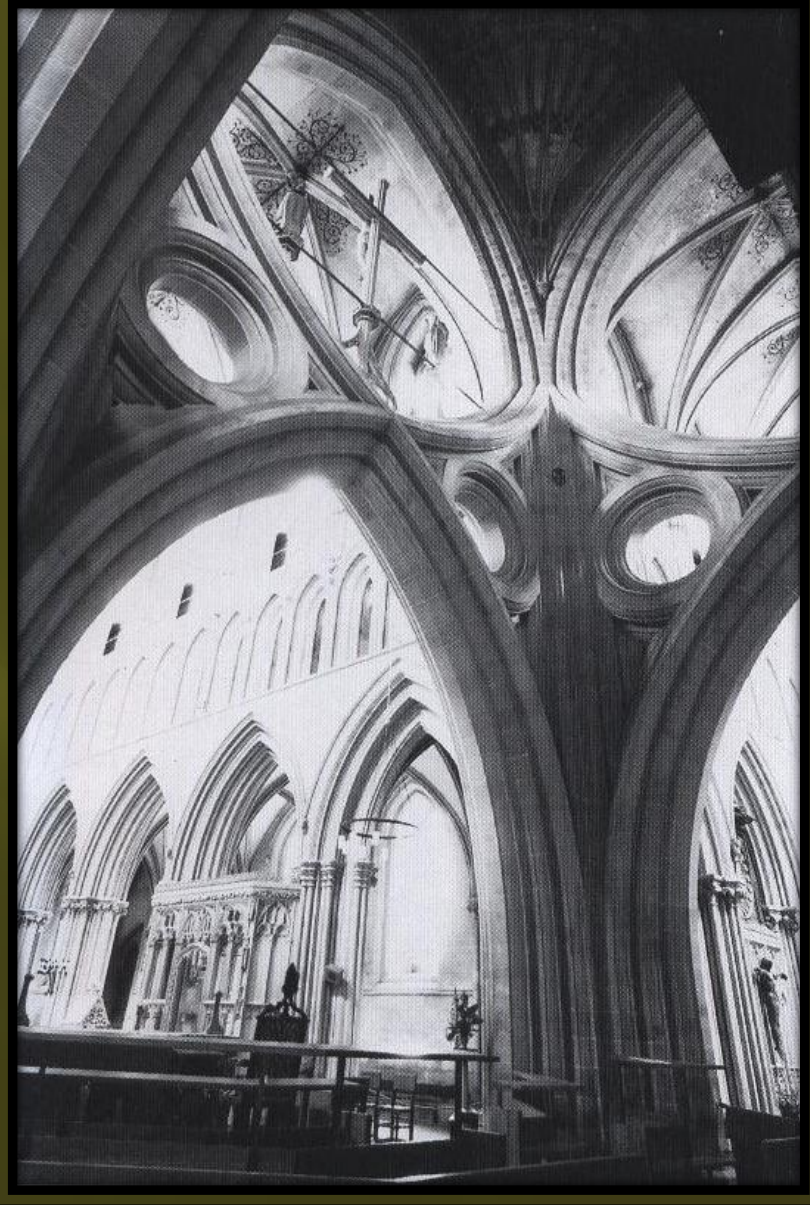
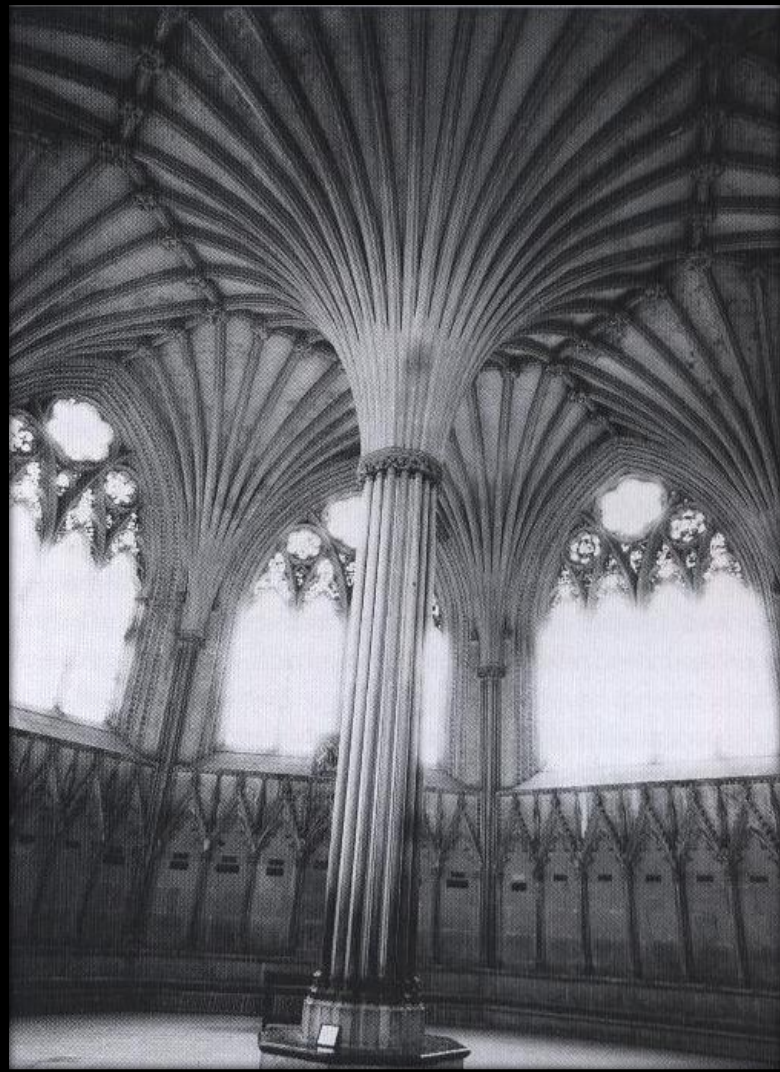
Special features: the gigantic window in light tracery



wells cathedral, England

Gothic Architecture

Exemplary cathedrals



Wells Cathedral, England

Gothic Architecture

wells cathedral, England



Gothic Architecture

Exemplary cathedrals

• Gloucester cathedral

- a more disciplined era began with the Gloucester cathedral. The last phase in English gothic architecture the style lasted up to the 16th century
- More dignity and grandeur, is achieved here.
- The vaulting though still decorative had powerful underlying geometry.

style : **perpendicular**

Characteristics: all details were fused with highly disciplined pattern



Gloucester cathedral, England

Gothic Architecture

Exemplary cathedrals



Perpendicular tower



Richer vault of the south porch
Gloucester cathedral, England

Gothic Architecture

Exemplary cathedrals

Gloucester cathedral, England



Gothic Architecture

Exemplary cathedrals

• ITALIAN CATHEDRALS

Gothic architecture in Italy was not as grand or common as in France and England but some exceptional buildings are found

The main characteristics were

- eastern projection
- shallow apsidal chapel contains the sanctuary

•Milan cathedral

style : Italian gothic

Characteristics:. brought out a new language of pure verticality in the elevations

Special features: the spires and its extensive buttressing

The Milan cathedral



Gothic Architecture

Exemplary cathedrals

Milan cathedral, Milan



Gothic Architecture

Exemplary cathedrals

Milan cathedral, milan



Gothic Architecture

Quotations

"The principle of the Gothic architecture is infinity made imaginable."

Samuel Taylor Coleridge

"The Gothic cathedral is a blossoming in stone ...The mountain of granite blooms into eternal flower."

Ralph Waldo Emerson

"A style of architecture which, to me at least, is, in comparison with all others, the most beautiful of all, and by far the most in harmony with the mysteries of religion."

John Keble

"The styles of Louis XIV, XV, XVI or Gothic are to architecture what a feather is on a woman's head; it is sometimes pretty, though not always, and never anything more."

Le Corbusier



West minister abbey, interior