

BCM

UNIT-I

BUILDING CONSTRUCTION & MATERIALS

INTRODUCTION

MASONRY CONSTRUCTION –

- ✘ THE CONSTRUCTION OF BUILDING UNITS BONDED TOGETHER WITH MORTAR.
- ✘ THE SELECTION OF THE TYPE OF MATERIAL (BRICK, STONE etc.) DEPENDS ON THE REQUIREMENTS OF STRENGTH, WATER PROOFING, THERMAL INSULATION, FIRE RESISTANCE, DURABILITY AND ECONOMY

CATEGORIES OF MASONRY WALLS

- × **LOAD BEARING WALLS-**
TO CARRY SUPERIMPOSED LOADS FROM FLOORS AND ROOF INCLUDING THEIR SELF WEIGHT. THEY ARE USUALLY CONSTRUCTED WITH CONTINUOUS FOUNDATION.
- × **NON-LOAD BEARING WALLS (PANEL, CURTAIN OR FILLER WALLS)-**
DOES NOT CARRY SUPERIMPOSED LOAD. SERVES AS PRIVACY AND TO KEEP OUT WIND AND WEATHER. THEY ARE USUALLY CONSTRUCTED WITH BRICK PIERS, SYSTEM OF R.C.C OR STEEL BEAMS AND COLUMN FRAMES.
- × **RETAINING WALLS-**
TO RESIST THE PRESSUR OF EARTH, GRANULAR MATERIAL OR LIQUID FILLED BEHIND IT AFTER IT IS BUILT.

MASONRY WALLS DEPENDING ON TYPES OF MATERIAL USED

- × STONE MASONRY
- × BRICK MASONRY
- × REINFORCED BRICK MASONRY
- × COMPOSITE MASONRY
- × HOLLOW CONCRETE BLOCK MASONRY
- × LOAD BEARING WALL TILE MASONRY

VARIOUS TECHNICAL TERMS USED IN MASONRY

- ✘ **HEADER-** IT IS A FULL BRICK OR STONE WHICH IS LAID WITH ITS LENGTH PERPENDICULAR TO THE FACE OF THE WALL (10 cm X 10 cm FOR MODULAR BRICKS).
- ✘ **STRETCHER-** IT IS A FULL BRICK OR STONE WHICH IS LAID WITH ITS LENGTH PARALLEL TO THE FACE OF THE WALL (10 cm X 20 cm FOR MODULAR BRICKS)

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ **COURSE – A HORIZONTAL LAYER OF BRICKS OR STONES. THICKNESS OF A COURSE= THICKNESS OF BRICK (10 cm FOR MODULAR BRICKS) + THICKNESS OF ONE MORTAR JOINT.**
- ✘ **HEADER COURSE- IT IS COMPOSED OF HEADERS ONLY.**
- ✘ **STRETCHER COURSE- IT IS COMPOSED OF STRETCHERS ONLY.**

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ BOND- OVERLAPPING OF BRICKS OR STONES IN A WALL IN ALTERNATE COURSES TO BIND THE WHOLE WALL TOGETHER.
- ✘ BED- SURFACE OF BRICKS OR STONES ON WHICH IT RESTS.
- ✘ FACE- THE SURFACE OF A WALL EXPOSED TO WEATHER.
- ✘ FACING- THE MATERIAL USED IN THE FACE OF THE WALL

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ **BACK-** THE INNER SURFACE OF WALL NOT EXPOSED TO WEATHER.
- ✘ **BACKING-** THE MATERIAL USED IN THE BACK OF THE WALL.
- ✘ **HEARTING-** THE PORTION OF A WALL BETWEEN FACING AND BACKING.
- ✘ **JOINT-** IT IS THE JUNCTION OF TWO OR MORE BRICKS/ STONES. JOINTS PARALLEL TO THE BED ARE BED JOINTS AND PERPENDICULAR TO FACE OF THE WALL ARE CROSS JOINTS.

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ RACKING BACK- THE PROCESS OF STOPPING THE UNFINISHED END OF A WALL IN STEPPED FASHION.
- ✘ BAT- PORTION OF A BRICK CUT BY SOME FRACTION OF ITS LENGTH.
- ✘ CLOSER- PORTION OF A BRICK SO CUT THAT ITS ONE LONG FACE REMAINS UNCUT.
- ✘ KING CLOSER- FORMED BY CUTTING OFF THE TRIANGULAR PIECE BETWEEN THE CENTER OF ONE WIDTH AND THE CENTER OF ONE SIDE.

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ **QUEEN CLOSER-** FORMED BY CUTTING A BRICK LENGTHWISE INTO TWO EQUAL PORTIONS.
- ✘ **BEVELLED CLOSER-** FORMED BY CUTTING A BRICK FOR HALF WIDTH AT ONE END AND FULL WIDTH AT THE ANOTHER.
- ✘ **MITRED CLOSER-** FORMED BY CUTTING ONE END OF A BRICK TO ANY WIDTH AND FULL WIDTH AT THE ANOTHER.
- ✘ **PERPEND-** IT IS A VERTICAL JOINT ON THE FACE OF THE WALL DIRECTLY ABOVE VERTICAL JOINTS IN ALTERNATE COURSE.

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ FROG- A DEPRESSION ON THE TOP FACE OF A BRICK. IT PROVIDES A BOND BETWEEN BRICK AND MORTAR AND PREVENTS DISPLACEMENT OF BRICK.
- ✘ QUOIN- THE WEDGE SHAPED BRICK/STONE USED AT THE CORNER OF WALLS.
- ✘ PLINTH- THE HORIZONTAL PROJECTING OR FLUSH COURSE PROVIDED AT THE BASE OF THE WALL ABOVE GROUND LEVEL. IT RAISES THE LEVEL OF THE GROUND FLOOR OF THE BUILDING ABOVE THE NATURAL GROUND LEVEL AND PROTECTS IT FROM RAIN

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ **PLINTH COURSE- THE TOPMOST COURSE OF PLINTH AND IS FINISHED FLUSH WITH THE GROUND FLOOR.**
- ✘ **SILL- A HORIZONTAL MEMBER OF BRICK /STONE /CONCRETE /WOOD TO GIVE SUPPORT FOR THE VERTICAL MEMBERS OF A WINDOW.**
- ✘ **JAMBS- THE VERTICAL SIDES OF THE FINISHED OPENINGS FOR DOORS/ WINDOWS/ FIRE PLACE**

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ REVEALS- THE EXPOSED VERTICAL SURFACES LEFT ON THE SIDES OF AN OPENING AFTER FITTING OF THE DOOR/WINDOW FRAME.
- ✘ LINTEL- A HORIZONTAL MEMBER OF STONE/ BRICK/ WOOD/ STEEL/ R.C.C TO SUPPORT THE LOAD OF MASONRY ABOVE AN OPENING.
- ✘ ARCH- AN ARRANGEMENT OF WEDGE SHAPED BLOCKS OF BRICK/STONE IN THE FORM OF A CURVE SUPPORTING THE MASONRY OR LOAD ABOVE AN

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ STRING COURSE- A HORIZONTAL COURSE OF MASONRY PROJECTING FROM THE FACE OF THE WALL AT EVERY FLOOR OR SILL LEVEL THROUGHOUT THE LENGTH OF THE WALL.
- ✘ CORNICE- A HORIZONTAL MOULDED PROJECTION PROVIDED NEAR THE TOP OR JUNCTION OF WALL AND CEILING OF A BUILDING.

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ FRIEZE- A COURSE OF MASONRY FLUSHED WITH THE WALL PROVIDED IMMEDIATELY BELOW THE CORNICE.
- ✘ BLOCKING COURSE- A COURSE OF MASONRY FLUSHED WITH THE WALL PROVIDED IMMEDIATELY ABOVE THE CORNICE.
- ✘ PARAPET- A LOW WALL BUILT AROUND A FLAT ROOF TO ACT AS PROTECTION FOR TERRACE USERS.

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ COPING- A COVERING PLACED ON THE TOP OF AN EXTERNAL WALL TO PREVENT THE SEEPAGE OF WATER THROUGH THE JOINTS OF TOPMOST COURSE OF WALL.
- ✘ TOOTHING- BRICKS LEFT PROJECTING IN ALTERNATE COURSES FOR THE PURPOSE OF BONDING FUTURE MASONRY WORK.
- ✘ THROATING- A GROOVE CUT ON THE UNDERSIDE OF A PROJECTING

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ THROUGH STONE- A STONE PASSING THROUGH A WALL FROM FRONT TO BACK FACE.
- ✘ BOND STONE- TWO OR MORE STONES PASSING THROUGH A WALL FROM FRONT TO BACK FACE.
- ✘ INDENTING- THE PROCESS OF LEAVING RECESSES IN MASONRY INTO WHICH FUTURE WORK CAN BE BONDED.
- ✘ TEMPLATE OR BED BLOCK- BLOCK OF STONE/ CONCRETE USED UNDER A BEAM OR GIRDER TO DISTRIBUTE CONCENTRATED LOADS AT THE ENDS OF BEAM/ GIRDERS OVER A

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ SPALLS- CHIPS/SMALL PIECES OF STONES USED TO FILL THE INTERSTICES IN STONE MASONRY.
- ✘ COLUMN- AN ISOLATED VERTICAL LOAD BEARING MEMBER WHOSE WIDTH DOES NOT EXCEED FOUR TIMES ITS THICKNESS.
- ✘ PIER- A VERTICAL MEMBER OF STONE/BRICK/ R.C.C TO SUPPORT ARCH, BEAM OR LINTEL etc., THE WIDTH OF

TECHNICAL TERMS USED IN MASONRY CONTD...

- ✘ BUTTRESS- A PIER BUILT AT THE EXTERIOR OF A WALL AND PROPERLY BONDED TO IT.
- ✘ CORBEL- IT IS GENERALLY THE ORNAMENTAL PROJECTION/ EXTENSION OF ONE OR MORE COURSE OF BRICK/ STONE FROM THE FACE OF A WALL.
- ✘ THRESHOLDS- THE STEPS PROVIDED FROM GROUND LEVEL TO REACH PLINTH LEVEL ON EXTERNAL DOORS