WALL DEFECTS AND THEIR ELIMINATION

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ANNOTATION

The main defects of the walls: cracks, stratification of masonry, buckling and subsidence of individual sections of the walls, etc.When examining buildings, it is necessary to carefully check the walls, seams and joints of panels cracks in stone walls most often appear as a result of uneven precipitation of the walls (due to the precipitation of the foundations of the foundations).In panel and brick buildings with defects, it is necessary to seal the joints and seams.

Keywords: defects in walls, cracks, deviation of walls from the vertical peeling, destruction of individual layers, corrosion, freezing, facades, settling, inspection.

INTRODUCTION

The main defects of stone walls are: cracks, stratification of masonry rows, deviation of walls from the vertical, buckling and subsidence of individual sections of walls, destruction of the outer surface layer of wall material and architectural details, loss of individual bricks from the lintels over window and door openings, absence and weathering of the mortar of masonry joints, peeling and destruction of finishing layers, tearing and freezing of structures, efflorescence of mortars and wall material. In large-panel buildings, special attention is required when examining the panels of external walls, internal load-bearing walls, vertical and horizontal joints between the panels of external walls, seams between the panels and window boxes, external corners of the building, the places where the attic floors and heartless roofs interface with the walls, as well as the joints of the frame and its interface with the enclosing structures.

During the operation of large-panel and large-block buildings, there are observed: leakage and high air permeability of joints, destruction of the sealing of joints, corrosion of steel embedded parts that provide the load-bearing capacity and stability of building structures, exposure or insufficient protection of reinforcement in the outer reinforced concrete layers of wall panels, destruction of the texture layer, the appearance of rust spots on the walls.

The most common leaks are in the thin walls of large-panel residential buildings through the vertical and horizontal joints of the exterior walls, overvoltage of the walls of window boxes, balcony slabs and roof panels. Water penetration into the joints is associated in some cases with poor sealing of the joints, anti-rain barriers in the horizontal joints and incorrect installation of drainage devices in the vertical joints.

Cracks in stone walls appear as a result of uneven precipitation of the walls (due to the precipitation of the foundations), the temperature of stresses at a large length of the walls, the overvoltage of the walls.

Cracks in the joints of the walls of fully assembled houses are formed due to temperature effects on individual elements of buildings and on the building as a whole, shrinkage deformations of the walls, uneven sediments of the building. Rust spots on the surface of the walls occur as a result of corrosion of the reinforcement and embedded steel parts of the panels, as well as the presence of ferrous inclusions in the concrete.

A significant opening of cracks on the external and internal walls of large-panel buildings (over 0.3 mm) can lead to a decrease in the load-bearing capacity of the walls and further destruction of concrete, corrosion of reinforcement to embedded parts, so long-term observations should be carried out with the help of beacons for the occurrence of cracks and measure their size.The constant state of the lighthouses indicates the termination of the deformation of the walls.

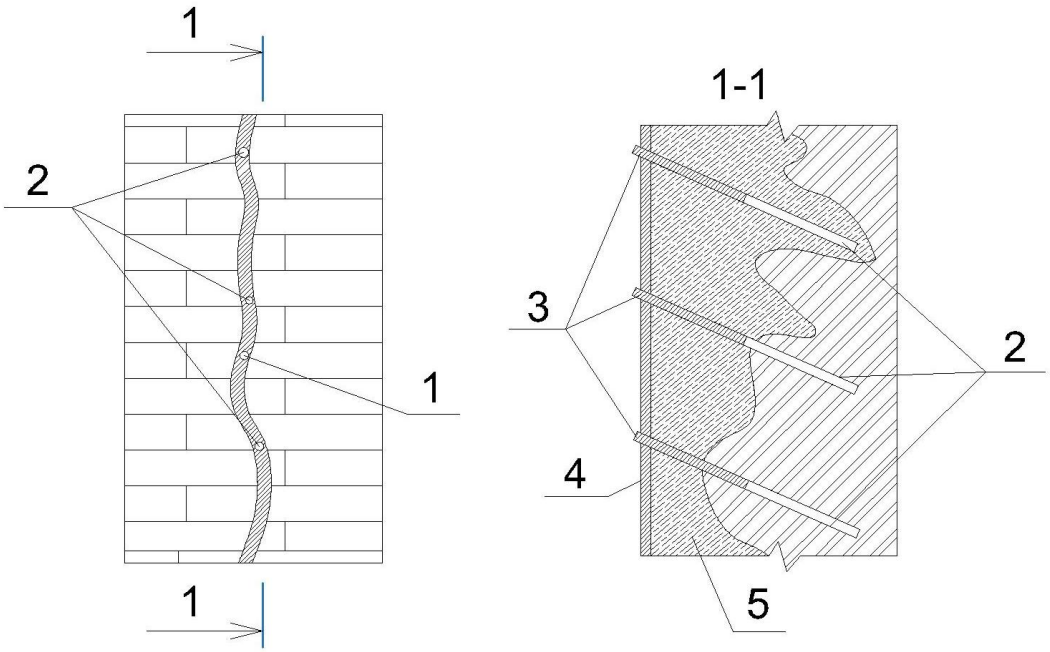
Characteristic signs of freezing of the panels are spots of dampness and mold that protrude on the internal surfaces of the external walls when the outdoor temperature decreases. In some cases, during frosts, frost sometimes appears on the walls and ice forms.

Signs of freezing joints are damp strips on the inner surfaces of wall panels along the vertical and horizontal butt joints, mold spots in the corners, the appearance of frost or condensation along the joints during severe frosts. These defects are particularly pronounced on the vertical and horizontal joints of the upper floors.

MATERIAL AND METHODS OF RESEARCH

Individual stones or brickwork of the wall and plinth are destroyed due to a malfunction of the drainpipes, as well as in the case of non-frost-resistant bricks used in construction.On the facades of buildings lined with ceramic tiles, it is necessary to pay special attention to those places where there is a bulging of the lining, the exit of individual plates from the wall plane, the formation of cracks or splinters in the corners of the tiles, rusty stains from the seams of the lining.In the presence of such defects, it is necessary to take measures to ensure the safety of pedestrians , tap the entire facade and remove the weakly holding plates (with their subsequent installation and strengthening in place according to the project).The cracks found on the surfaces of the panels with a width of opening a<0.3 mm, and in the joints and interfaces with a width a<0.1 mm.

During long breaks with the construction of the building, wall defects are formed, caused by changes in the properties of materials, since the necessary preservation of the structures of the objects under construction was not carried out. As a result, unfinished buildings and structures are exposed to multiple adverse environmental effects: humidification, freezing and thawing, heating and cooling, and weathering.Weathering of joints to a considerable depth worsens the thermal properties of brickwork by 10-15%, and also reduces its load-bearing capacity by up to 15 %. This defect is eliminated by strengthening the seams.



Drawing.1 Scheme of reinforcement of a section of a brick wall.

1-Crack, 2-injection holes, 3-injection pipes, 4-cement-polymer solution, 5-crack covered with cement-polymer solution.

The upper sections of brick walls that have undergone significant weathering are often easier to disassemble and lay out again.If the defective sections of the walls are located below the floors, then the amount of work increases dramatically and along with the dismantling of a significant part of the masonry walls, it becomes necessary to dismantle the floor slabs.In this case, you need to consider the option of strengthening the external sections of the walls, using reinforced mortar or reinforced concrete clips with subsequent injection of cement-polymer mortar into the masonry.

Areas in brick walls with cracks up to 4 mm must be restored by injecting cement-polymer mortar into the cracks of the masonry. Single shallow cracks are caulked with cement mortar.Through cracks with an opening of more than 4 mm in the walls are eliminated by partial disassembly of the masonry. The remaining masonry is washed with cement milk and the disassembled area is laid out with a full-bodied brick of the brand 100 on cement mortar.When reconstructing brick walls or when they are in disrepair, it is necessary to completely replace the brickwork.In this case, first, temporary racks made of wood or metal are installed between the lintels and the window sills. When the width of the piers is more than 1 m, two racks are installed. The inclusion of the racks in the work is carried out with the help of wedge-shaped pads.

For new masonry, it is necessary to use a brick of at least grade 100. Horizontal joints are reinforced, a gap of 3-4 cm should be left between the top of the new masonry and the lintel or old masonry, which is tightly caulked with a hard cement mortar M100 and higher.In large-panel buildings, as noted above, with a long break in construction work, the strength of the concrete panels and the concrete homolichivaniya in the vertical joints may decrease, as well as corrosion of the reinforcement panels.With an unacceptable decrease in the load-bearing capacity of wall panels caused by a decrease in the strength of concrete and corrosion of the reinforcement, they can be reinforced with one-sided or two-sided buildup. You can attach the reinforcement

reinforcement to the reinforced panel with the help of "blind" or through anchors.When building up the device, it is best to use shotcrete-concrete or spray-concrete.With a significant delamination of expanded clay concrete panels, their repair can be carried out by applying a shotgun concrete with the addition of polymers (GKZH-9 or latex SKS-65 TP), The shotgun concrete is applied with a thickness of no more than 50 mm after installation with a wire mesh.

RESEARCH RESULTS

When examining buildings, it is necessary to study the joints of the panels and the interior space. Sealing of inter-panel seams and cracks is performed to ensure the tightness of the joint and prevent the penetration of moisture.Sealing of the joints between the panels covered with plaster is carried out with the help of mounting foam.In the joints, it is necessary to drill holes through which the foam is poured and expands to fill the empty space inside the seam. The final stage of joint repair is the application of mastic-sealant over the plaster for high-quality waterproofing of joints.The technology of sealing joints and joints in panel and brick houses must be carried out in the following sequence:

- the seams of the stanovy panels are prepared, dirt, paint are cleaned, mortar and old layers of sealant are removed, if the seam is damaged, it is expanded;

- a heat-protective polyurethane material is poured into the seam, which fills all voids and cavities when expanded;

- laying of elastic sealing tubes on the not yet frozen layer of thermal protection;

- applying sealant over the seam and sealing the seams of windows and loggias, balcony joints, etc.

This technology of sealing the seams of the house is called "warm seam" and allows you to forget about cold corners and blowing in the rooms for a long time.

CONCLUSIONS

The balcony is the most vulnerable part of any home or office - because it is subject to the strongest influence of atmospheric phenomena.

The most important enemy of balconies is moisture, in all its manifestations: from spring drops to severe frosts.Moisture gets into all the microcracks of the balcony, no matter what material it is made of and what it is covered with, and even in the uncovered loggias.As a result, dampness and mold form in the microcracks, as a result of which the metal parts of the balcony begin to corrode, and the cracks become wider, which worsens the appearance. It is necessary to seal the joints.It is especially necessary to seal the seams in panel houses, as there are enough deep seams that require regular high-quality care. To do this, it is necessary to clean all surfaces that are subject to sealing.Existing cracks and deep seams are filled with mounting foam and insulation particles that insulate and strengthen the seams of the building, then a sealant is applied.

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