

REKONSTRUKCIJE MEDETAŽNIH KONSTRUKCIJ V STARIH OBJEKTIH *THE RECONSTRUCTION OF FLOOR STRUCTURES IN OLD BUILDINGS*

raziskava, research

povzetek

Pri prenavljanju obstoječih objektov se pogosto sprašujemo, kaj storiti z obstoječimi stropnimi konstrukcijami. Večinoma imajo starejši objekti leseno ali opečno obokano konstrukcijo in le manjši del stropnih konstrukcij je grajen v drugih materialih. Običajno se pri rekonstrukcijah v Sloveniji lesene stropne konstrukcije skoraj vedno zamenjuje z masivnimi monolitnimi betonskimi ploščami. Te imajo kar nekaj dobrih lastnosti, ki jih lesene nimajo. Toda v vseh primerih menjava lesenih stropnih elementov konstrukcije z armiranobetonsko masivno ploščo prav gotovo ni najbolj primeren poseg. Nemalokrat se zgodi, da se pri uporabi armiranobetonskih plošč pojavijo dodatni problemi, povezani s temeljenjem zgradbe, saj so armiranobetonske konstrukcije bistveno težje od lesenih. Kljub načeloma ugodni funkciji "toge šipe", ki jo predstavlja armiranobetonska plošča v primeru seizmične obremenitve, se izkaže, da za posamezne primere to ne velja, saj se z dodajanjem mase povečujejo tudi vztrajnostne sile.

doseženi cilji, namen in rezultati

Z rezultati naših raziskav smo želeli predvsem informirati tako projektante kot tudi investitorje z raznimi načini rekonstrukcije, hkrati pa prikazati korektne in nekorektne zasnove rekonstrukcij. Tako so v raziskavi analizirani najpogostejše uporabljeni različni tipi sovprežnih konstrukcij z opisi njihovih prednosti in slabosti. Dejstvo je, da se je pri rekonstrukcijah vedno treba odločati tudi na osnovi podatkov obstoječega objekta. Najboljši kompromis pa se doseže, če poznamo vse pozitivne in negativne lastnosti posegov.

S praktičnimi primeri rekonstrukcij vključenimi v raziskovalni nalogi, smo želeli pokazati, da je pri rekonstrukcijah treba biti inventiven in iznajdljiv, da je treba v čim večji meri ohranjati obstoječ statični sistem, razen v primerih, ko je neustrezen in ga je treba sanirati. Le tako se lahko izognemo nepotrebnim dodatnim stroškom.

problematika v arhitekturi, umestitev obravnavane teme v te tokove in njen pomen

Projektne rešitve so vedno kompromisne, dobljene na osnovi nekaterih bolj ali manj izpostavljenih zahtev. V praksi pogosto naletimo na neprimerne projektne rešitve, ki nastanejo zaradi različnih vzrokov. Med najbolj pogoste lahko štejemo neznanje projektanta, njegovo odvisnost od investitorja ali odvisnost od izvajalca. Dejstvo je, da velika večina investitorjev na gradnjo gleda skozi posebno lino, kjer vidi le ceno. Prav zato je naloga projektanta, da najde ustrežno projektno rešitev, da jo zna pravilno ovrednotiti in predstaviti investitorju na tak način, da jo ta sprejme in potrdi. Prav argumentirane idejne rešitve podprte s kalkulativnimi izračuni variantnih rešitev, so dobra osnova za uspešno realizacijo projekta.

ključne besede

strop, les, konstrukcije, sovprežne konstrukcije

summary

When renewing extant buildings we often wonder what to do with the extant floor structures. Older buildings mostly have wooden or arched brick structures, only a smaller share of buildings have different floor structures. During reconstruction in Slovenia almost always wooden floor structures are replaced by massive monolithic concrete slabs that have certain beneficial properties that wooden ones lack. However substitution of wooden floors with massive reinforced concrete slabs is surely not the best and only solution. Often use of reinforced concrete slabs causes additional problems linked to the building's foundations, since such structures are significantly heavier than wooden ones. Despite the generally beneficial function of the "rigid slab", which the reinforced concrete slab represents under seismic stress, in certain cases it proves to be a mistake, since additional mass also increases persistence forces.

intentions, goals and results

By using the results of our research we wanted to inform designers and investors about various methods of reconstruction and to present certain examples of correct and incorrect reconstruction solutions. Thus we analysed the most often used types of load-bearing structures with descriptions of their advantages and weaknesses. The fact is that during reconstruction decisions have to be taken also from data about the extant building itself. The best compromise is reached when we know all the positive and negative properties of the intervention. By using practical examples of reconstruction we wanted to show that in reconstruction one has to be inventive and practical and that the extant technical mechanical system has to be preserved as much as possible, except in cases where it is inadequate or needs repair. Only in this way can we avoid additional costs.

architectural issues, positioning the topic in ongoing debate and its' significance

Project solutions are always compromise solutions that are obtained from certain more or less pronounced demands. In practise we often encounter inadequate project solutions that occur because of various reasons. Amongst the most common we can state the designer's ignorance, his/her dependency on the investor or builder. The fact stands that most investors view construction only through a very narrow window, where only the price is seen. This is precisely the reason why the designer has to find the most suitable design solution, to correctly evaluate it and present it to the investor in such a way that the latter accepts and confirms it. Well-argued project solutions supported by calculations of various idea proposals are a good foundation for successful project realisation.

key words

floor; wood, wooden structure, pre-stressed structures