

**YUQORI QAVATLI BINOLARNING KONSTRUKTIV
ELEMENTLARINIG YECHIMLARI**

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Annotatsiya. Maqolada yuqori qavatli binolarning konstruktiv tuzilmalarni me'moriy tasvifini, unurning tarkibiy qismlarini o'rganish dolzarb masalalariga bag'ishlangan. Ob'ektning hajmiy tuzilishi, fazoviy puxtaligi va umumiy turg'unlikdagi mustahkamligini ta'minlaydi. Yuqori qavatli binolarda vertikal elementlardan (ustunlar, devorlar, yadrolar, diafragmalar va boshqalar) va gorizontal elementlardan (orayopmalar, rigellar, nishabli kamarlar va boshqalar) iborat turli tuzilmalar qo'llaniladi.

Kalit so'zlar: konstruktiv tuzilmalar va unsurlar; yuqori qavatli binolar; yuqori qavatli binolarning karkazlari; karkaz tizimlari.

Аннотация. Статья посвящена актуальным вопросам изучения конструкционных решений конструкций как составных частей конструктивной системы высотных зданий, составляющих архитектурный образ и объемное строение, обеспечивающее прочность

объемной структуры, пространственную продуманность и общую устойчивость объекта.

Ключевые слова: *конструкционные конструкции и системы; высотные здания; каркасы многоэтажных зданий; каркасные системы.*

Annotation. *The article is devoted to the topical issues of studying structural structures as components of the structural system of high-rise buildings that make up an architectural image and a three-dimensional structure that ensures the strength of the three-dimensional structure, spatial thoughtfulness and overall stability of the object. In multi-storey buildings, various structures are used, consisting of vertical elements (columns, walls, cores, diaphragms) and horizontal elements (crossbars, inclined belts).*

Keywords: *structural structures and systems; high-rise buildings; frames of multi-storey buildings; frame systems.*

Kirish. Kam qavatli binolar bilan taqqoslaganda, baland binolar asosan yagona kompleks struktura sifatida ishlaydi va bu xususiyat ushbu turdagi binolarni loyihalash jarayoniga sezilarli ta'sir ko'rsatadi. Yuqori qavatli binolarning strukturaviy dizayni ob'ektning mustahkamligi, fazoviy qat'iyli va umumiy barqarorligini ta'minlaydigan bir-biriga bog'liq bo'lgan konstruksiyaviy elementlar majmuasidan tashkil topgan muayyan me'moriy tasvirni va ma'lum bir fazoviy konstruksiyani hosil qiladi.

Qurilish tizimining har qanday versiyasi yuqori qavatli binoning ishonchli ishlashini kamida 150 yil davomida ta'minlashi kerak, bunda ob'ektning resursini tiklash mumkin bo'lgan taqdirda uning xavfsiz ishlashi va texnik xizmat ko'rsatish kafolati hisobga olinadi.

Asosiy qism. Yuqori qavatli binolarning konstrukturaviy tizimlarida vertikal (ustunlar, devorlar, diafragma va boshqalar) va gorizontal (orayopmalar, tomlar, rigellar va boshqa elementlardan) tashkil topgan turli tizimli tuzilmalar qo'llaniladi. Yuqori qavatli binolarning gorizontal qo'llab-quvvatlovchi tuzilmalari, odatda, bir xil va ular qattiq beton disk (quyma, yig'ma quyma, yoki yig'ma).

Yuqori qavatli binoning yoki osmono'par binoning gorizontalarining asosiy turlari uning balandligiga qarab 40x40, 50x50, 40x60 m. Bunday turdagi cheklovlar shamol yuklarining binoning barqarorligiga ta'siri bilan bog'liq bo'lib, uning tebranishlari natijasida qo'zg'alish imkoniyatini hisobga olgan holda. Shuning uchun ham 80-100 qavatli osmono'par binolar 2,0-2,5 ming kvadrat metrdan oshmaydi. [1].

Shamol ta'sirini kamaytirish uchun aerodinamik shakllar (silindrsimon, piramidal yoki prizmatik) ishlatiladi.

Binoning barqarorligini oshirish uchun ular kesim maydonini bir, ikki, uch yoki to'rt yo'nalishda kengaytirishga murojaat qilinadi. Ko'p qavatli binolarning moslashuvchanligi, ya'ni balandligi kengligi nisbati odatda birdan sakkizgacha. [1].

Moslashuvchanlik koeffitsientining yuqori qiymati binoning yuqori qismida qabul qilinadigan tezlashmalarga olib keladi va shuning uchun binoning normal ishlashini ta'minlash uchun ba'zi damping elementlarini ishlatish talab etiladi. Oraliq balandliklar uchun standart qiymat interpolatsiya usuli bilan olinadi. [2].

Yuqori qavatli binolarning turli xususiyatlari ularning makon-rejalashtirish va arxitektura-dizayn echimlariga sezilarli ta'sir ko'rsatadi. Ushbu turdagi binolarda quyidagi xususiyatlar mavjud:

- yuk ko'taruvchi tuzilmalar tomonidan sezilarli yuklar;
- binolarning tarkibiy qismlarining turli xil yuklanishi;
- gorizontalar komponent sifatida katta shamol yuki;
- Po'lat va beton konstruksiyalarni birgalikda ishlash muammolari;
- tabiiy omillarning ta'siri (seysmik, ob-havo, shamol);
- texnogen omillarning ta'siri (tebranish, shovqin, favqulodda vaziyatlar, yong'inlar);
- yong'in va hayot faoliyati xafsizligi tizimlariga qo'yiladigan talablar;
- murakkab muhandislik va texnik yordam. [2].

Baland binolar xarakterli xususiyati, an'anaviy ko'p qavatli binolardan farqli o'laroq, gorizontalar shamol yuki ta'sirida. Jahon amaliyotida yuqori qavatli

binolarning mustahkamligi va barqarorligini ta'minlash uchun binoning qavatiga, qurilish sharoitlariga, qurilish maydonining seysmik faolligiga, muhandislik-geologik sharoitlarga, havo sharoitlariga, birinchi navbatda shamol yuklariga, shuningdek, arxitektura-rejalashtirish talablariga bog'liq. [3].

Zamonaviy yuqori qavatli qurilishning asosiy vazifalaridan biri tuzilmalarning ishonchliligi va xavfsizligini ta'minlash bilan bog'liq masalalarni hal qilishdir. Shuning uchun loyixachining vazifasi, uning ayrim tarkibiy qismlari qulab tushmaydigan bino yaratishdir.

So'nggi yillarda yuqori qavatli binolarning tarkibiy tizimlarini ishlab chiqishni umumlashtirib, ularning asosiy xususiyatlarini qayd etish mumkin:

- uchta asosiy tizimni qo'llash: slindirsinom, qutisimon, silindirsimon va qutisimon ularning birikish variantlari;

- yangi tizimni yaratish: yirik fazoviy karkaz;

- tashqi qobiqning yotiq elementi sifatida diagonal panjaradan foydalanish;

- binolarning konstruktiv tizimi tomonidan shamol yuklarini samarali qabul qilish uchun loyihalash metodlarini joriy etish

- tashqi tuzilmalar;

- ikki tomonlama ventilyatsiya qilingan jabhadan foydalanish. [4].

Xulosa: Yuqoridagilarni inobatga olgan xolda shuni umumiy xulosa qilib aytish mumkin, hozirgi kunda bizning respublikamizda xam ko'p qavatli karkasli binolar qurilishini rivojlantirish uchun har tomonlama shart-sharoitlar mavjud va yetarli. Buning uchun rivojlangan davlatlarning ushbu soxada loyixalashtirish va qurilish tajribalarini yanada chuqurroq o'rganishni davom ettirib, to'plangan materiallarni chuqur taxlil qilish asosida o'zimizning hududlarimiz va milliyligimizdan kelib chiqqan xolda davom ettirish kerak bo'ladi. Bu ishlarni natijasida yirik shaxarlarimiz arxitekturasi va infratuzilishini zamon talablariga muvofiq yanada boyitishga katta xissa qo'shilgan bo'linadi.

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