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**Annotatsiya.** Maqolada tizimli tuzilmalarni me'moriy tasvirni va uch o'lchamli strukturani tashkil etuvchi yuqori qavatli binolarning konstruksiyaviy tizimining tarkibiy qismi sifatida o'r ganish dolzarb masalalariga bag'ishlangan bo'lib, ular ob'ektning hajmiy tuzilishi, fazoviy puxtaligi va umumiyligini 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 tizimlar; yuqori qavatli binolar; yuqori qavatli binolarning karkazlari; karkaz tizimlari.

**Аннотация.** Статья посвящена актуальным вопросам изучения конструкционных 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 turdag'i binolarni loyihalash jarayoniga sezilarli ta'sir ko'rsatadi. Yuqori qavatli binolarning strukturaviy dizayni ob'ektning mustahkamligi, fazoviy qat'iyligi 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.

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

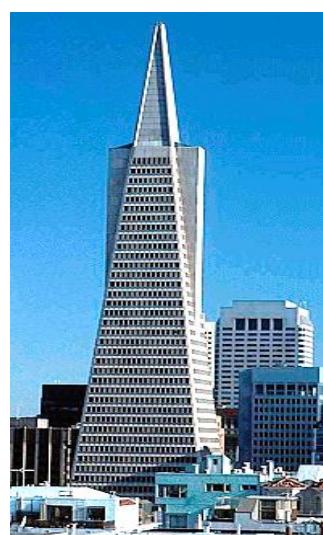
qavatli binolarning gorizontal qo'llab-quvvatlovchi tuzilmalari, odatda, bir xil ular qattiq beton disk (quyma, yig'ma quyma, yoki yig'ma). Gorizontal tuzilmalar vertikal va gorizontal yuklarni sezadi va ularni boshqa vertikal yuk ko'taruvchi tuzilmalarga uzatadi, bu esa o'z navbatida bu yuklarni poydevorga o'tkazadi.

Yuqori qavatli binoning yoki osmono'par binoning gorizontal qismlarining asosiy turlari uning balandligiga qarab 40x40, 50x50, 40x60 m. Bunday turdagи 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.

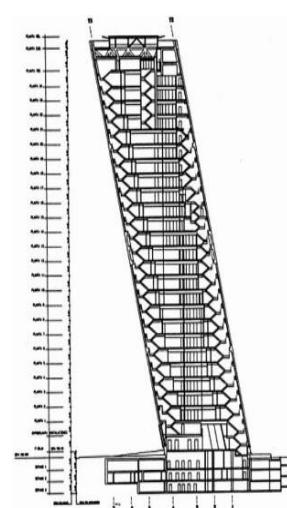
Shamol ta'sirini kamaytirish uchun aerodinamik shakllar (silindrsimon, piramidal yoki prizmatik) ishlataladi.



a) silindrsimon



b) piramidal



c) prizmatik



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

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 ishlatalish talab etiladi. Binoning yuqori qismidagi standart gorizontal siljishlar 150 m balandlikdagi binolar uchun 0,002 mm dan oshmasligi kerak, 250 m dan ortiq-

0,001 mm gacha bo'lishi kerak. Oraliq balandliklar uchun standart qiymat interpolatsiya usuli bilan olinadi.

Bundan tashqari, yuqori qavatli binolarda tabiiy va texnogen xususiyatlari favqulodda vaziyatlarda ularni avariyan dan himoya qilish uchun maxsus qurilish choralari ko'zda tutilgan. Ushbu chora-tadbirlar yuk ko'taruvchi tuzilmalarning kuchini saqlab qolishdan iborat.

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

- yuk ko'taruvchi tuzilmalar tomonidan sezilarli yuklar;
- binolarning tarkibiy qismlarining turli xil yuklanishi;
- gorizontal 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.

Baland binolar xarakterli xususiyati, an'anaviy ko'p qavatli binolardan farqli o'laroq, gorizontal shamol yuki ta'sirida. Juhon 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.

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 yotiqli 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.

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

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