

HAS CODE DESIGN CHECKLIST
2012 IBC BUILDING CODE CHECKLIST
FOR HAS PROJECTS

(Transfer the resulting data onto the building plans **Life Safety & Building Code Information** drawing sheet)

NOTE: This is not a complete and all-inclusive requirement of all applicable codes and standards associated with construction projects on HAS property. Architect/Engineer of record is responsible for the complete code-compliance of each project. Reference to sections should be verified and corrected.

Name of Project: _____

Address: _____ Zip Code _____

Proposed Use: _____

Owner/Authorized Agent: _____ Phone # (_____) _____ - _____ E-Mail _____

Owned By: City HAS Tenant

PRIMARY DESIGN PROFESSIONAL:

EDITION OF IBC CODE _____ **FOR:** New Construction Addition Uplift

EXISTING: Reconstruction Alteration Repair

YEAR CONSTRUCTED _____ **ORIGINAL USE** _____ **RENOVATED** _____ **CURRENT USE** _____

BUILDING DESIGN DATA (Actual)

Construction Type

I-A	II-A	III-A	IV	V-A
I-B	II-B	III-B		V-B

Mixed construction: No Yes Type(s): _____

Sprinklers: No Partial Yes NFPA 13 NFPA13R NFPA 13D Other Extinguishing _____

Standpipes: No Yes Class I II III Wet Dry

Fire District: No Yes | **District Contact & Phone:** _____ **Flood Hazard Area:** No Yes

Building Height: Feet _____ **Number of Stories** _____ **Mezzanine(s):** No Yes

Gross Building Area: (use additional sheets if necessary for code review)

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
___ Floor			
6th Floor			
5th Floor			
4th Floor			
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor above Grade plane			
Basement(s)			
TOTALS			

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ALLOWABLE AREA

Primary Occupancy Classification:

Assembly	<input type="checkbox"/> A1	<input type="checkbox"/> A2	<input type="checkbox"/> A3	<input type="checkbox"/> A4	<input type="checkbox"/> A5
<input type="checkbox"/> Business	<input type="checkbox"/> Educational	Factory	<input type="checkbox"/> F1 Moderate	<input type="checkbox"/> F2 Low	<input type="checkbox"/> F3 SP
Institutional	<input type="checkbox"/> I1	<input type="checkbox"/> I2	<input type="checkbox"/> I3	<input type="checkbox"/> I4	<input type="checkbox"/> D Day Care
<input type="checkbox"/> Mercantile	Residential	<input type="checkbox"/> R1	<input type="checkbox"/> R2	<input type="checkbox"/> R3	<input type="checkbox"/> R4
Hazardous	<input type="checkbox"/> H1- Detonate	<input type="checkbox"/> H2- Deflagrate	<input type="checkbox"/> H3- Combust	<input type="checkbox"/> H4- Health	<input type="checkbox"/> H5- HPM
Storage	<input type="checkbox"/> S1- Moderate	<input type="checkbox"/> S2- Low	<input type="checkbox"/> High Piled		
<input type="checkbox"/> Utility & Misc.	<input type="checkbox"/> Parking Garage	<input type="checkbox"/> Open	<input type="checkbox"/> Closed	<input type="checkbox"/> Repair Garage	

Secondary Occupancy(s):

Special Uses:	402	403	404	405	406	407	408	409	410	411	412
	413	414	415	416	417	418	419	420	421	422	423

Special Provisions: 509.2 509.3 509.4 509.5 509.6 509.7 509.8 509.9

Mixed Occupancy (508): No Yes Separation (508.3.3): _____ Hr. Exception:

Incidental Use Separation and Protection (508.2) – _____

Accessory Occupancies (508.3.1) | This is not exempt as a Non-Separated Use (see exceptions).

Non-Separated Use (508.3.2)

The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

Separated Use (508.3.3) - See below for area calculations

For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy "A"}}{\text{Allowable Area of Occupancy "A"}} + \frac{\text{Actual Area of Occupancy "B"}}{\text{Allowable Area of Occupancy "B"}} \text{ Must be } \leq 1$$

_____ + _____ = _____ Is it less than or equal (\leq) 1?

STORY#.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503 ⁵ AREA	(C) AREA FOR FRONTAGE INCREASE ¹	(D) AREA FOR SPRINKLER INCREASE ²	(E) ALLOWABLE AREA OR UNLIMITED ³	(F) MAXIMUM BUILDING AREA ⁴

1. Frontage area increases (I_f) from Section 506.2 are computed thus: $I_f = [F/P - 0.25]W/30$
 - a. Total Perimeter which fronts a public way or open space having 20 feet minimum width = (F) (Include full width of public ways)
 - b. Total Building Perimeter = (P)
 - c. Ratio (F/P) = _____ - Note: [(F/P) - 0.25] cannot exceed 0.75
 - d. $W/30$ = Sum of perimeter with (Width of open space each side $\geq 20'$ truncate to 30' MAX) = (W)/30 Note: W/30 will be ≤ 1.0
 - e. Percent of frontage increase $I_f = [F/P - 0.25] \times W/30$
 - f. Total square footage Increase For Frontage is Area from Table 503 _____ multiplied by I_f
2. The sprinkler increase per Section 506.3 for buildings protected by NFPA 13 system is as follows:
 - a. Multi-story building $I_s = 200$ percent (Area from Table 503 (A_i) x 2)
 - b. Single story building $I_s = 300$ percent (Area from Table 503 (A_i) x 3)
3. Unlimited area buildings are applicable under conditions of Sections:
 - a. Group B, F, M, S, A-4 (507); Group A motion picture (507.10); Malls (507.11); and H-2 aircraft paint hangers (507.8).
4. Maximum Building Area = (Total number of stories allowed in the building w/ Max 3) x (Sum of $A_i + I_f + I_s$) (See 506.4).
 - a. No single floor can exceed the allowable floor area calculated by Frontage plus Sprinkler increases.
 - b. The maximum area of open parking garages must comply with 406.3.5.
 - c. The maximum area of air traffic control towers must comply with 412.1.2.

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ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS (504)	SHOWN ON PLANS	CODE REFERENCE
Type of Construction	Type:		Type:	
Building Height in Feet	Feet:	Feet = H + 20' =		
Building Height in Stories	Stories:	Stories + 1 =	Stories	

FIRE PROTECTION REQUIREMENTS

LIFE SAFETY PLAN SHEET #, IS _____ IF PROVIDED.

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING		DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
		REQ'D Y/N	PROVIDED (W/-----* REDUCTION)				
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Plan View Exterior Walls							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions							
Exterior walls - See Table 602							
North							
East							
West							
South							
Interior walls and partitions							
Floor Construction Including supporting beams and joists							
Roof Construction Including supporting beams and joists							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy Separation							
Party/Fire Wall Separation							
Smoke Barrier Separation							
Tenant Separation							
Incidental Use Separation							

* Indicate section number permitting reduction for RATING column

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LIFE SAFETY SYSTEM REQUIREMENTS

IBC / FBCB SECTION	LSC SECTION	EMERGENCY SYSTEM	YES	NO
1006	101:7.9	Emergency Lighting:		
1011	101:7.10	Exit Signs:		
907.2	101:9.6	Fire Alarm:		
907.2.11	101:9.6.1.8	Smoke Detection Systems:		
1008.1.10	101:7.2.1.7	Panic Hardware:		
909	101:9.3	Smoke Control (404.5, 403.54, 402.10, 407.4, 408.6)		

EXIT REQUIREMENTS

NUMBER AND ARRANGEMENT OF EXITS

FLOOR, ROOM OR SPACE DESIGNATION	MINIMUM ² NUMBER OF EXITS		TRAVEL DISTANCE		ARRANGEMENT MEANS OF EGRESS ^{1,3} (SECTION 1015.2.1)	
	REQUIRED	SHOWN ON PLANS	ALLOWABLE TRAVEL DISTANCE (TABLE 1016.1)	ACTUAL TRAVEL DISTANCE SHOWN ON PLANS	REQUIRED DISTANCE BETWEEN EXIT DOORS	ACTUAL DISTANCE SHOWN ON PLANS

- 1 Corridor dead ends (Section 1018.4)
- 2 Single exits (Table 1021.2)
- 3 Common Path of Travel (Section 1014.3)

EXIT WIDTH

USE GROUP OR SPACE DESCRIPTION	(a)	(b)	(OL)	(c)		EXIT WIDTH (in) ^{2,3,4,5,6,7}			
	AREA ¹ sq. ft.	AREA ¹ PER OCCUPANT TABLE 1004.1.1	CALCULATED OCCUPANT LOAD (a) ÷ (b)	CALCULATED EGRESS WIDTH (c) = OL x Factor ²		REQUIRED WIDTH (c) ÷ #Exits (Table 1019.1)		ACTUAL WIDTH SHOWN ON PLANS	
				STAIR	LEVEL	STAIR	LEVEL	STAIR	LEVEL

VERIFY THE FOLLOWING:

- 1 See Table 1004.1.1 to determine whether net or gross area is applicable for each occupancy classification. See definitions "Floor Area, Gross" and "Floor Area, Net" (Section 1002)
- 2 Minimum stairway width (Section 1005.1); min. door width (Section 1005.1); min. corridor width (Section 1017.2)
- 3 Minimum width of exit passageway (Section 1020.2)
- 4 See Section 1004.5 for converging exits.
- 5 The loss of one means of egress shall not reduce the available capacity to less than 50 percent of the total required (Section 1005.1)
- 6 Assembly occupancies – Check this section if Assembly Occupancy is involved (Section 1028)
- 7 Accessible means of Egress (2010 ADA Standard, 2012 FBC-Accessibility, 2009 IBC Section 1007, Chapter 11, ADAAG, ANSI A-117.1, or Local Accessibility Code enforced)

HAS CODE DESIGN CHECKLIST

NEW STAIR DESIGN CHECKLIST - CHAPTER 10 IF THERE IS NO STAIR, THEN SKIP THIS SECTION.

NOTE: If the stairs are existing, they must comply with the requirements for existing stairs, if modified, or continue to comply with the code enforced at the time of construction if no modifications are contemplated unless the AHJ determines conditions which threaten life safety.

- Are there “**changes in elevation**” in the path of egress within the building or site?
 - If yes, then stairs or ramps with landings at top and bottom of each run are required.
- Is this a building with more than one floor level?
 - If yes then stairs are required from each floor and are required to discharge to the exterior with access to a public way or area of safety.
- If the **Construction Type** of the building is noncombustible, then the stair construction must be of noncombustible material except for the handrails
- Minimum headroom** above the line of nosings at stairs 6'-8" (80") and 7'-6" (90") at landings.

VERIFY STAIR GEOMETRY:

- Verify the floor to floor height at each floor.
- Is the height of each stair flight measured from floor to floor is the same at all floor levels YES NO
 - If “NO” then verify stair geometry design at each floor level individually.

If “YES” then verify stair tread and riser geometry: **Maximum Riser height 7" minimum riser height 4"**

VERIFY RISER HEIGHT:

- Floor to floor height in Inches = _____
- Divide the number of inches by 7: _____" ÷ 7 = _____
- Round up to the next integer = _____ (for example: Floor to floor height is 12'-6" x 12 = 150 Inches ÷ 7 = 21.42857) round up to 22
- Verify riser height: Divide the floor to floor height by the rounded number = _____ (example 150 ÷ 22 = 6.818)
- Is the result less than 7 and more than 4 YES NO
 - **If YES then riser height complies for that number of risers.**
 - **If NO then add additional risers until the result is less than 7.**

TREAD DEPTH:

- Where changes in elevation occur, are there locations where the elevation change is 21 inches or less?
 - Elevation changes 21 inches or less require minimum 13" tread depth.
 - If the change in elevation is 12" or less, then a sloped surface is required.
 - Sloped surfaces greater than 1:20 must meet requirements for **RAMPS**
 - Ramp slope cannot exceed 1:12**
- Elevation changes greater than 21" require minimum tread depth of 11"

STAIR LANDING:

- Is the floor to floor height equal to or more than 12 feet? YES NO
- If YES then intermediate landing is required. Divide the stair flight into vertical runs that are not more than 12 feet in vertical height between landings.
- The intermediate landing depth** must be the same as stair width if stair changes direction.
- If stair does not change direction, intermediate landing depth in the direction of egress must be at least the width of the stair but is not required to exceed 48".
- The landing widths** must be at least the same as the width of the stair.
- Doors clear width at the stair exit enclosure discharge must have a clear width of at least two thirds (2/3) the required width of the stair.
- Doors into an exit stair enclosure must swing in the direction of egress travel.

GUARDS AND HANDRAILS:

- Guards and handrails shall comply with the **structural requirements of Section 1607.7.**
- Are there landings or other locations where the standing elevation is more than 30 inches above the grade or floor below?
- IF YES, then guards are required. Minimum height is 42 inches above the deck. Except for Storage, Industrial, catwalks and similar locations, intermediates are required in the guard.
- Intermediates shall not allow passage of a 4" sphere to a height of 36" or an 4-3/8" sphere above 36" to 42" and 6" sphere at the triangular opening of riser, tread, and bottom rail. EXCEPTION - 21" sphere shall not pass at guards in industrial or storage areas not open to the public.

HANDRAIL DETAILS:

- Handrails are required at both sides of stairs and at ramps with slopes greater than 1:20.
- Outside diameter 1-1/4" minimum and 2" maximum
- Top of rail above line of nosings or surface of ramp is 34" minimum, 38" maximum.
- Clearance is from wall, guard, or other obstruction a minimum of 2-1/4".
- Handrails at landings shall extend 12" level from a line directly above the top riser and 1 full tread depth at slope at bottom riser.

HAS CODE DESIGN CHECKLIST
STRUCTURAL DESIGN – Chapter 16

DESIGN LOADS:

Importance Factors:	Wind (Iw)	_____
	Snow (Is)	_____
	Seismic (Ie)	_____
Live Loads:	Roof	_____ psf
	Mezzanine	_____ psf
	Floor	_____ psf
Snow Load:		_____ psf
Wind Load:	Basic Wind Speed	_____ mph
	Exposure Category	_____
	Wind Base Shears (for MWFRS)	V _x = _____ V _y = _____

SEISMIC DESIGN CATEGORY A

Compliance with Section 1616.4 only? Yes No

SEISMIC DESIGN CATEGORY B C D

Seismic Use Group

Spectral Response Acceleration S_s _____ %g S₁ _____ %g

Site Classification _____ Field Test Presumptive Historical Data

Basic structural system (check one)

- | | |
|---|---|
| <input type="checkbox"/> Bearing Wall | <input type="checkbox"/> Dual w/Special Moment Frame |
| <input type="checkbox"/> Building Frame | <input type="checkbox"/> Dual w/Intermediate R/C or Special Steel |
| <input type="checkbox"/> Moment Frame | <input type="checkbox"/> Inverted Pendulum |

Seismic base shear V_x = _____ V_y = _____

Analysis Procedure Simplified Equivalent Lateral Force Modal
Architectural, Mechanical, Components anchored? _____

LATERAL DESIGN CONTROL: Earthquake: _____ Wind: _____

SOIL BEARING CAPACITIES:

Field Test (provide copy of test report) _____ psf
 Presumptive Bearing capacity _____ psf
 Pile size, type, and capacity _____

PLUMBING FIXTURE REQUIREMENTS
 See International Plumbing Code or Local Code Requirements
NOTE: IPC(2006) Section 403.4 Travel Distance to nearest toilet facility

USE	WATERCLOSETS		URINALS	LAVATORIES		SHOWERS/ TUBS	DRINKING FOUNTAINS	
	MALE	FEMALE		MALE	FEMALE		REGULAR	ACCESSIBLE
EXISTING								
NEW								
REQUIRED								

ACCESSIBLE PARKING

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED		TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	
TOTAL					

NOTE: New ADA/ABA-AG 2004 Requires 1 of every 6 spaces as van accessible

HAS CODE DESIGN CHECKLIST

SPECIAL APPROVALS & SPECIAL INSPECTIONS (Chapter 17)

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DFS, ICC, etc., describe below – attach sheet if needed)

Special Inspections: Chapter 17 specifies several instances where special inspection of either a manufacturer's product or materials and methods of construction which may also include on-site inspections during placement of materials.

ENERGY SUMMARY

ENERGY REQUIREMENTS:

The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If energy cost budget method, state the annual energy cost budget vs allowable annual energy cost budget.

The COMCHECK software available as a cost free download from the www.energycodes.gov web site will satisfy most submittal requirements. Use the RESCHECK software for low rise apartment units, single family, duplex, and townhouse buildings.

THERMAL ENVELOPE

Method of Compliance:

- Prescriptive Performance Energy Cost Budget Compliance Software

Roof/ceiling Assembly (each assembly)

- Description of assembly
- U-Value of total assembly
- R-Value of insulation
- Skylights in each assembly
- U-Value of skylight
- total square footage of skylights in each assembly

Exterior Walls (each assembly)

- Description of assembly U-Value of total assembly R-Value of insulation
- Openings (windows or doors with glazing)
- U-Value of assembly
- shading coefficient
- projection factor
- low e required, if applicable
- Door R-Values

Walls adjacent to unconditioned space (each assembly)

- Description of assembly
- U-Value of total assembly
- R-Value of insulation
- Openings (windows or doors with glazing) U-Value of assembly
- Low e required, if applicable Door R-Values

Walls below grade (each assembly)

- Description of assembly U-Value of total assembly R-Value of insulation

Floors over unconditioned space (each assembly)

- Description of assembly U-Value of total assembly R-Value of insulation

Floors slab on grade

- Description of assembly
- U-Value of total assembly
- R-Value of insulation
- Horizontal/vertical requirement
- Slab heated

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance:

- Prescriptive Performance Energy Cost Budget

<p>Lighting schedule</p> <ul style="list-style-type: none"> <input type="checkbox"/> lamp type required in fixture <input type="checkbox"/> number of lamps in fixture <input type="checkbox"/> ballast type used in the fixture <input type="checkbox"/> number of ballasts in fixture <input type="checkbox"/> total wattage per fixture <input type="checkbox"/> total interior wattage specified vs allowed <input type="checkbox"/> total exterior wattage specified vs allowed 	<p>Equipment schedules with motors (not used for mechanical systems)</p> <ul style="list-style-type: none"> <input type="checkbox"/> motor horsepower <input type="checkbox"/> number of phases <input type="checkbox"/> minimum efficiency <input type="checkbox"/> motor type <input type="checkbox"/> # of poles
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MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Method of Compliance

- Prescriptive Energy Cost Budget

Climate Zone _____

Thermal Zone

- winter dry bulb
- summer dry bulb

Interior design conditions

- winter dry bulb
- summer dry bulb
- relative humidity

Building heating load

Building cooling load

Mechanical Spacing Conditioning System

- Unitary**
 - description of unit
 - heating efficiency
 - cooling efficiency
 - heat output of unit
 - cooling output of unit

Boiler

- total boiler output. If oversized, state reason.

Chiller

total chiller capacity. If oversized, state reason.

List equipment efficiencies

Equipment schedules with motors (mechanical systems)

- motor horsepower
- number of phases
- minimum efficiency
- motor type
- # of poles