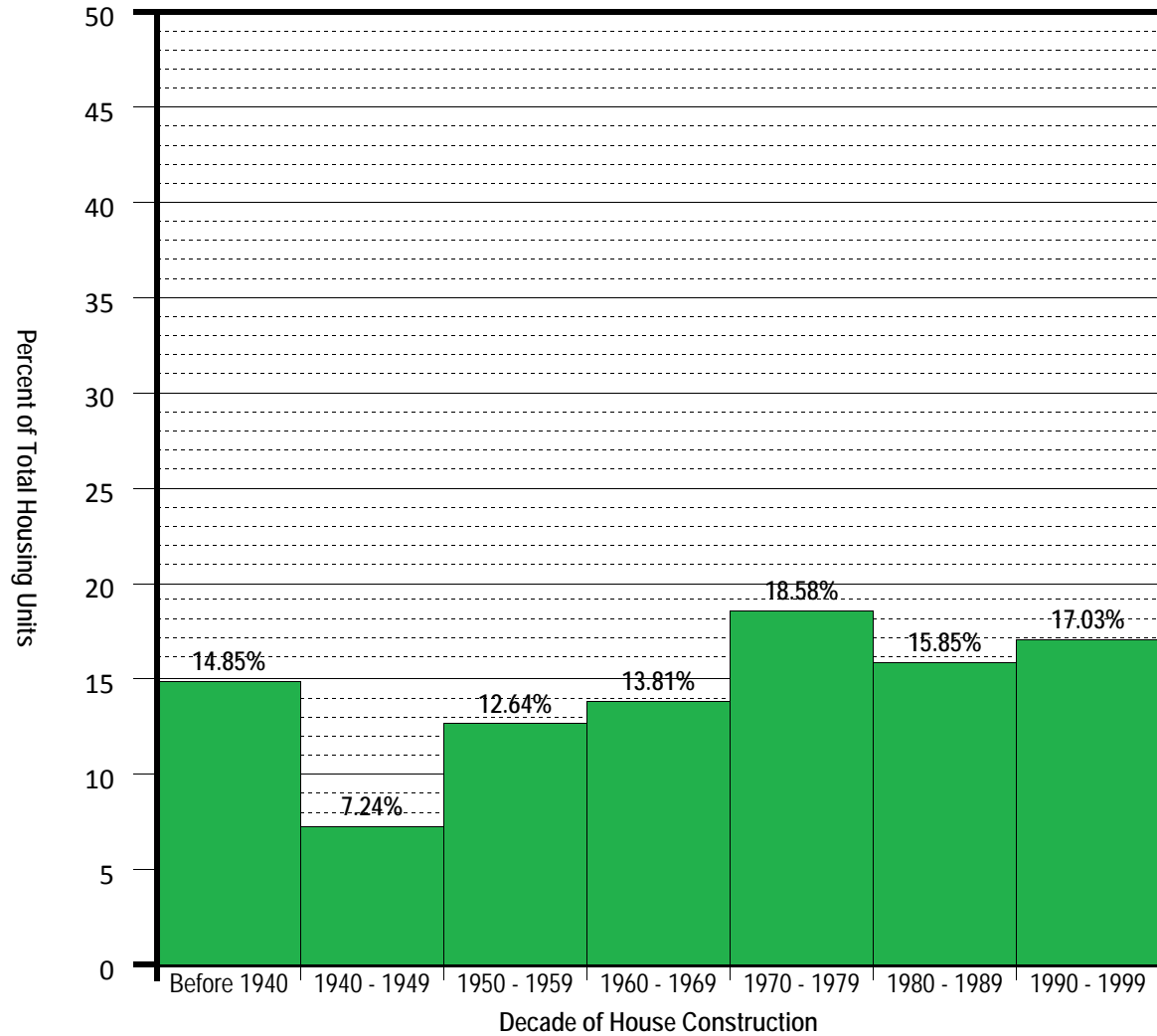




Appendix 6 : A National and State Graphs of Housing Units

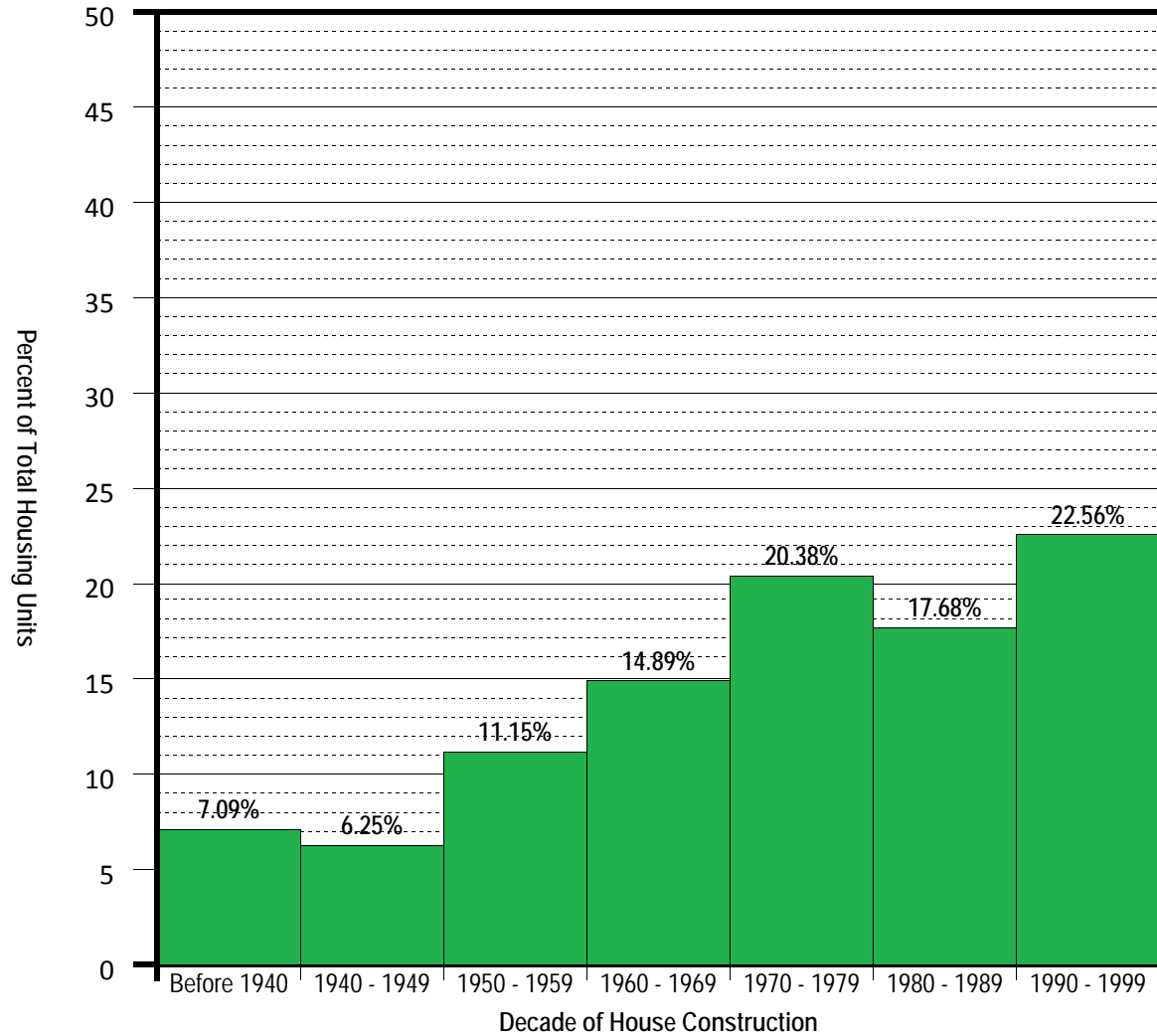
United States Housing Stock Summary

Number of Housing Units: **117,323,117**



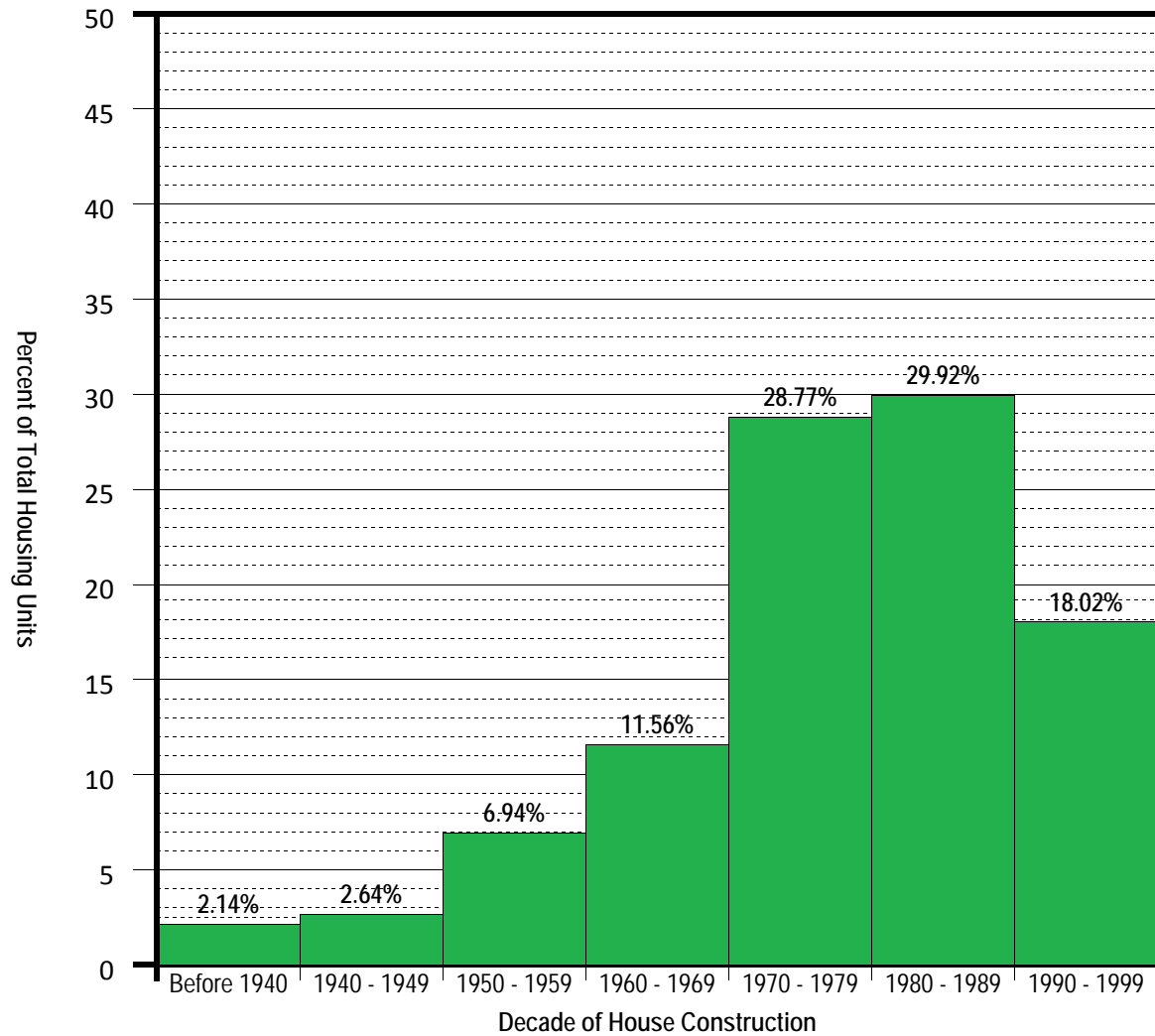
Alabama

Number of Housing Units: **1,963,711**



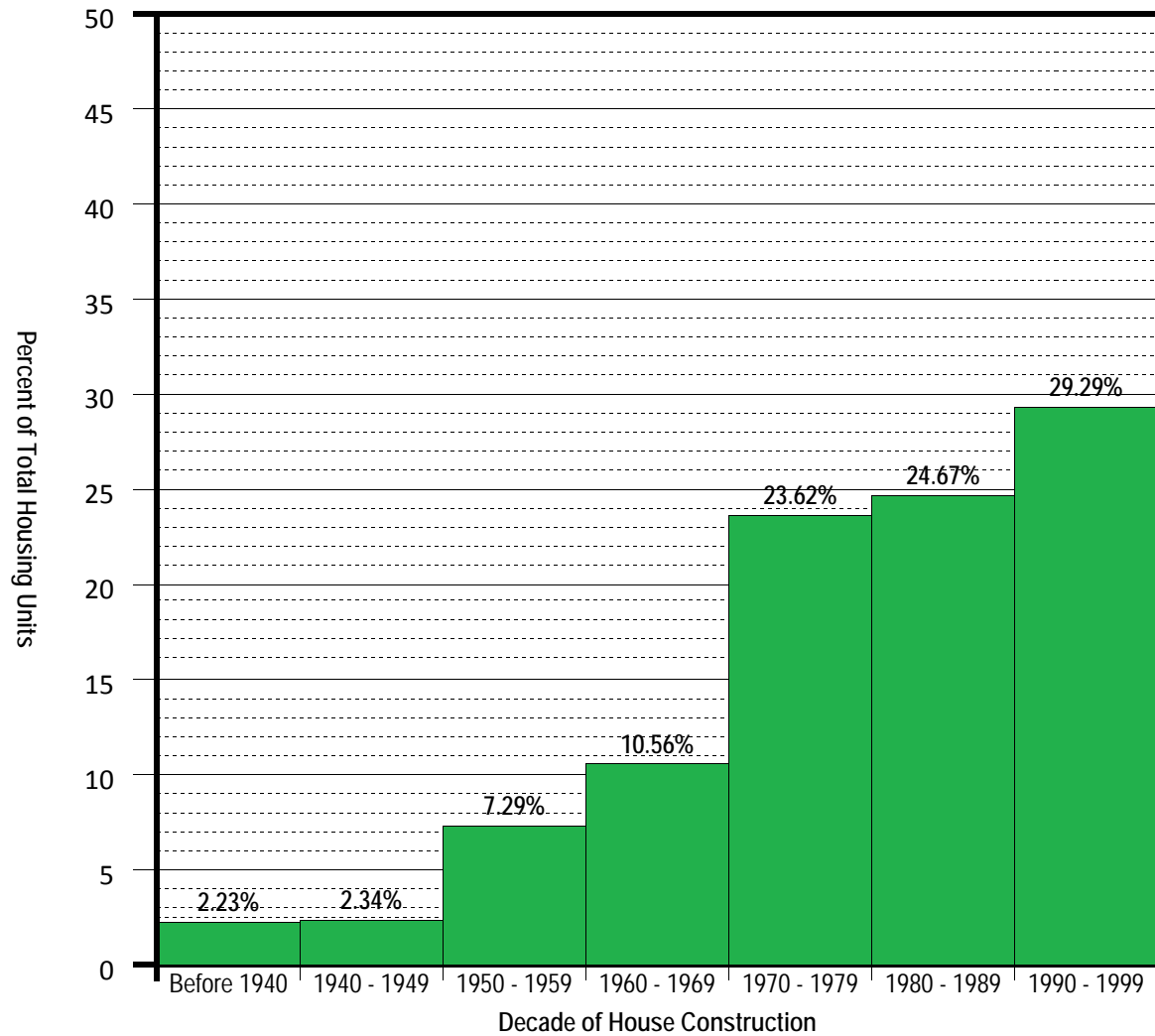
Alaska

Number of Housing Units: **260,978**



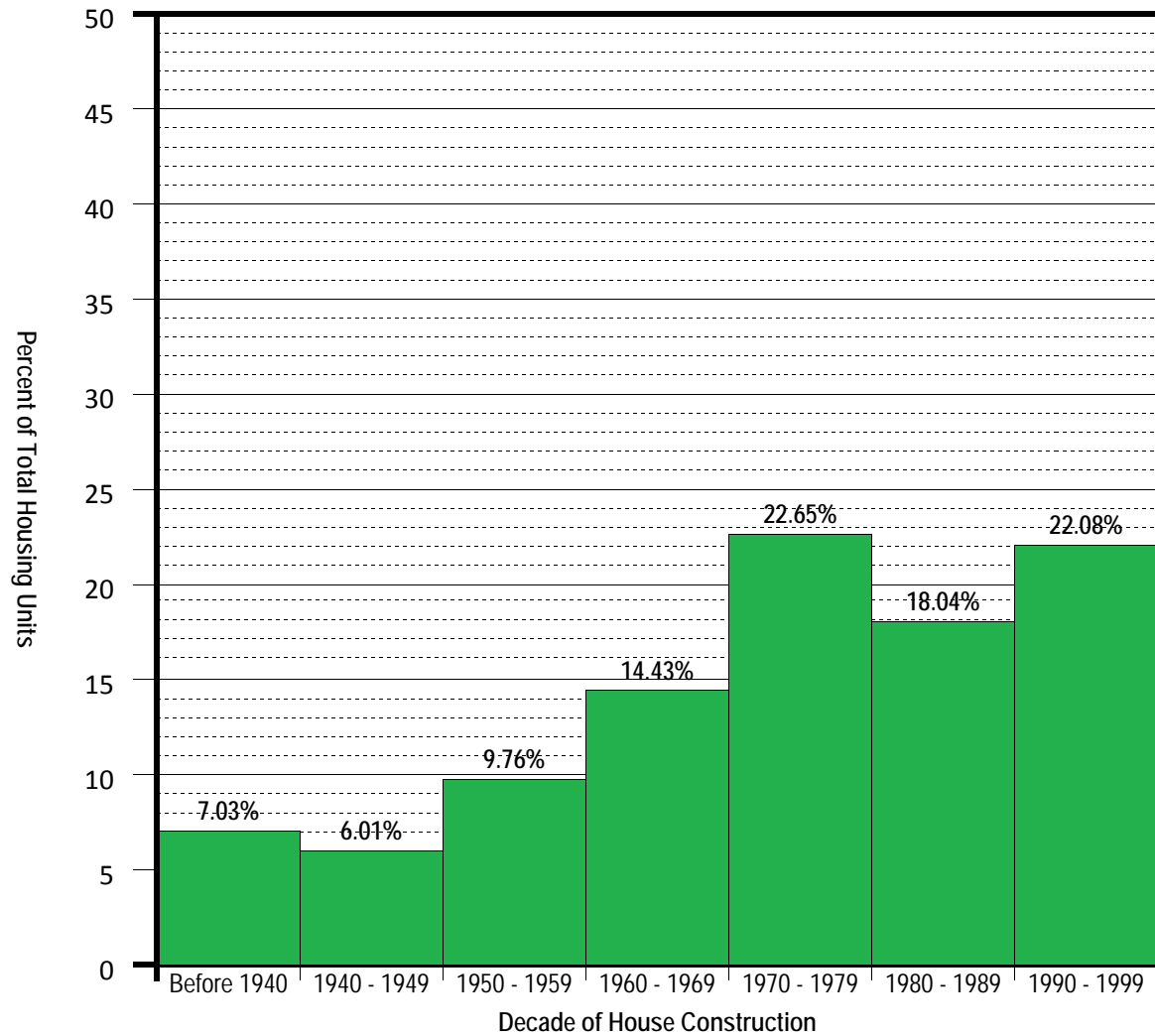
Arizona

Number of Housing Units: **2,189,189**



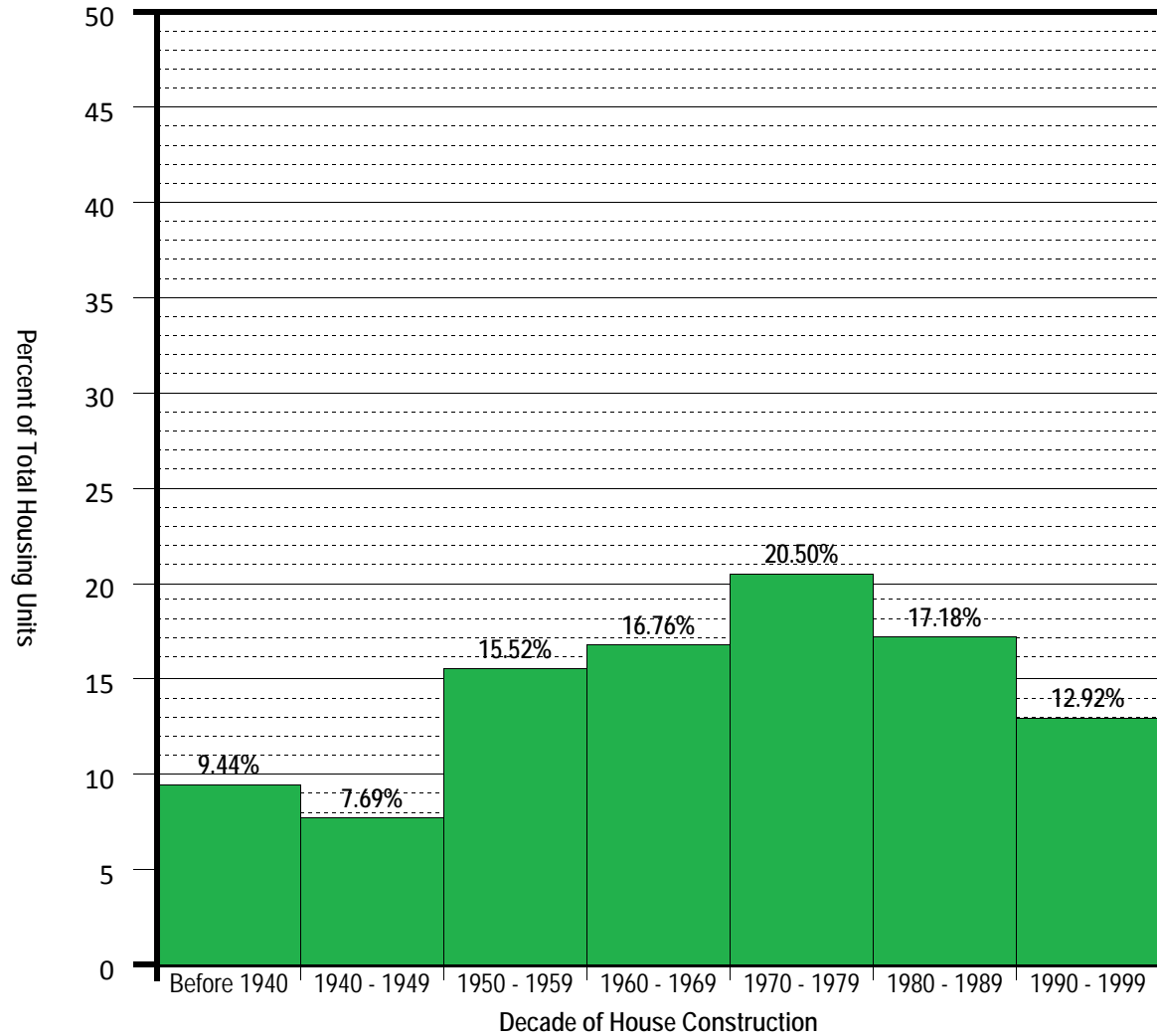
Arkansas

Number of Housing Units: **1,173,043**



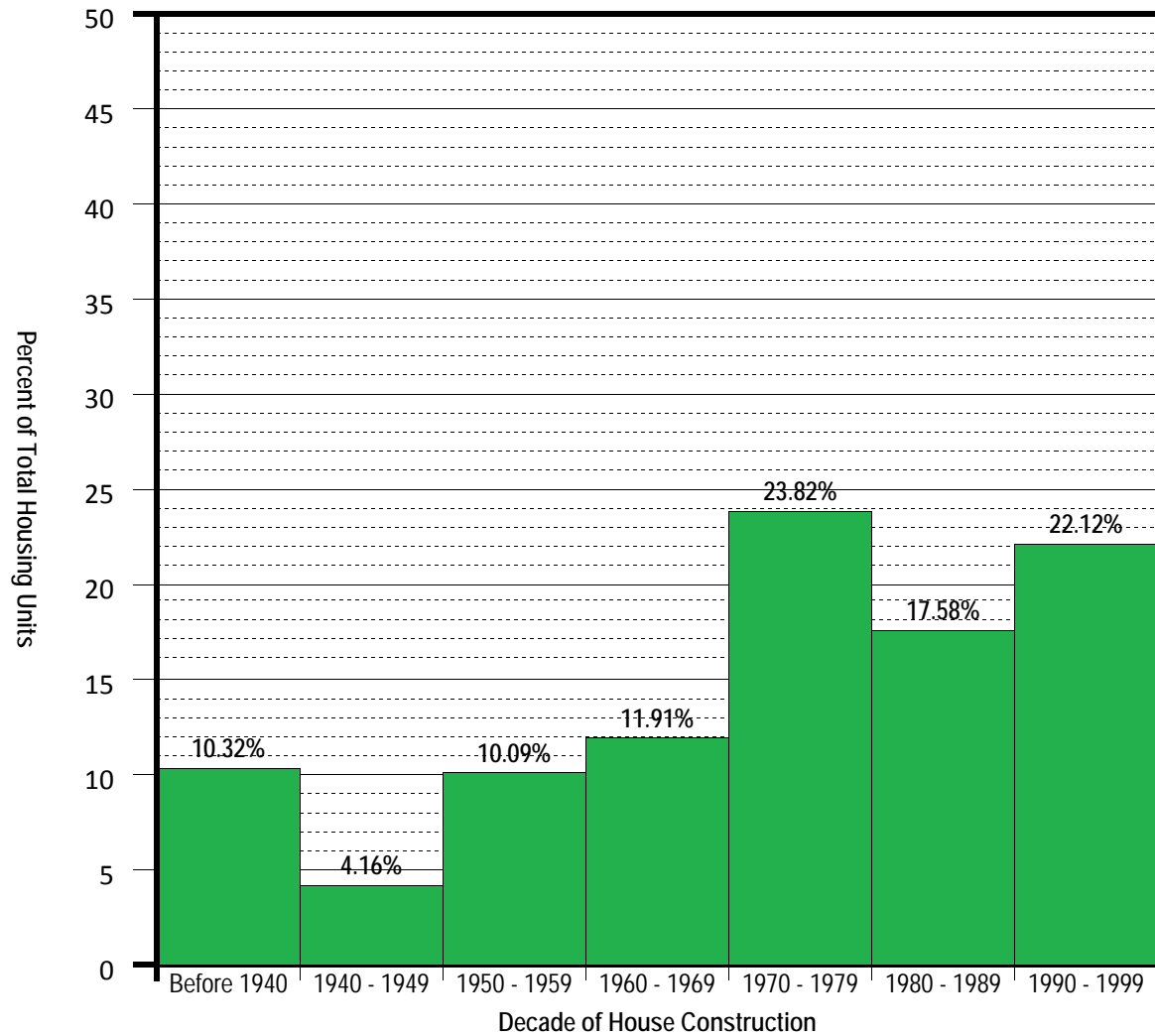
California

Number of Housing Units: **12,214,549**



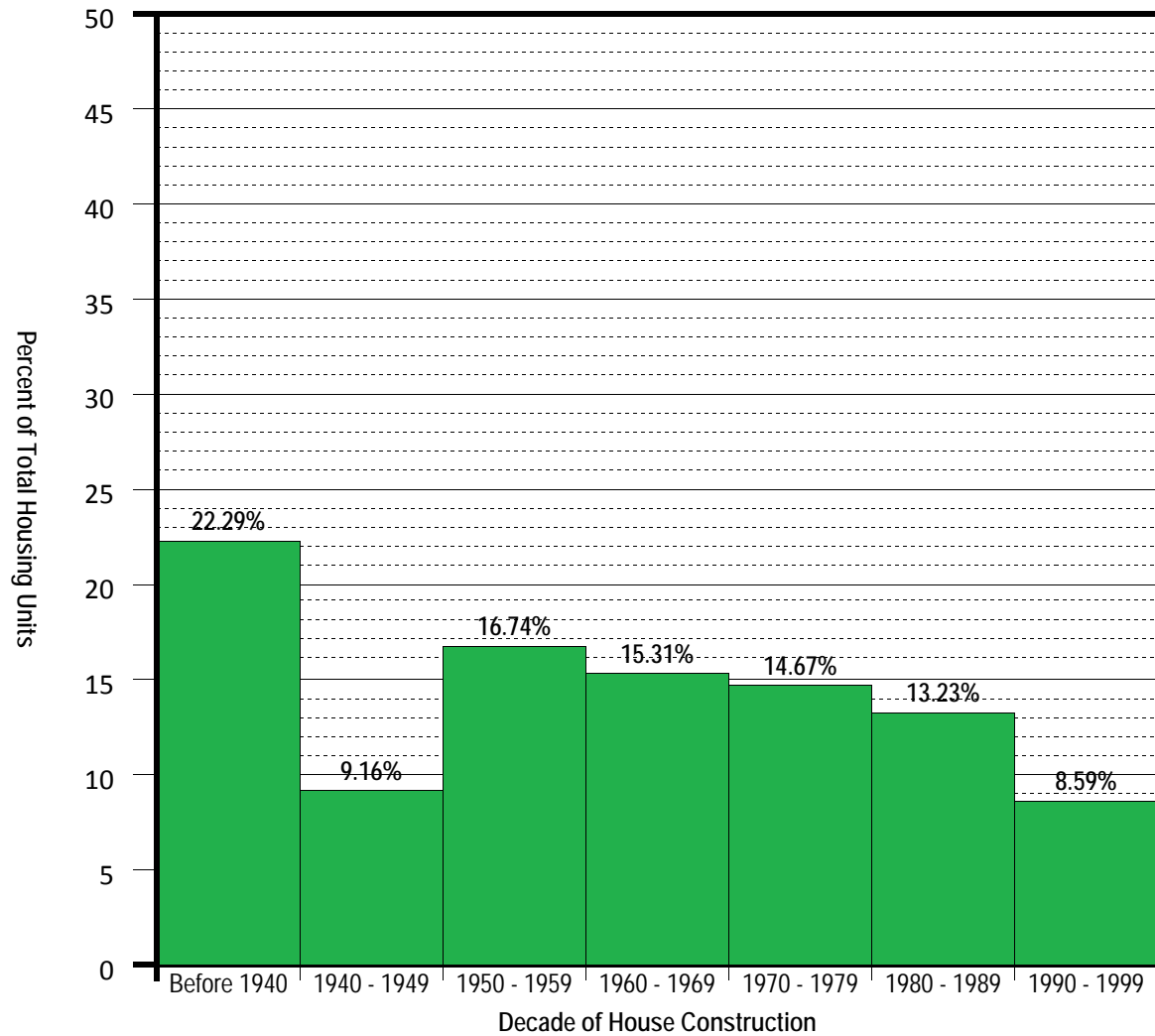
Colorado

Number of Housing Units: **1,808,037**



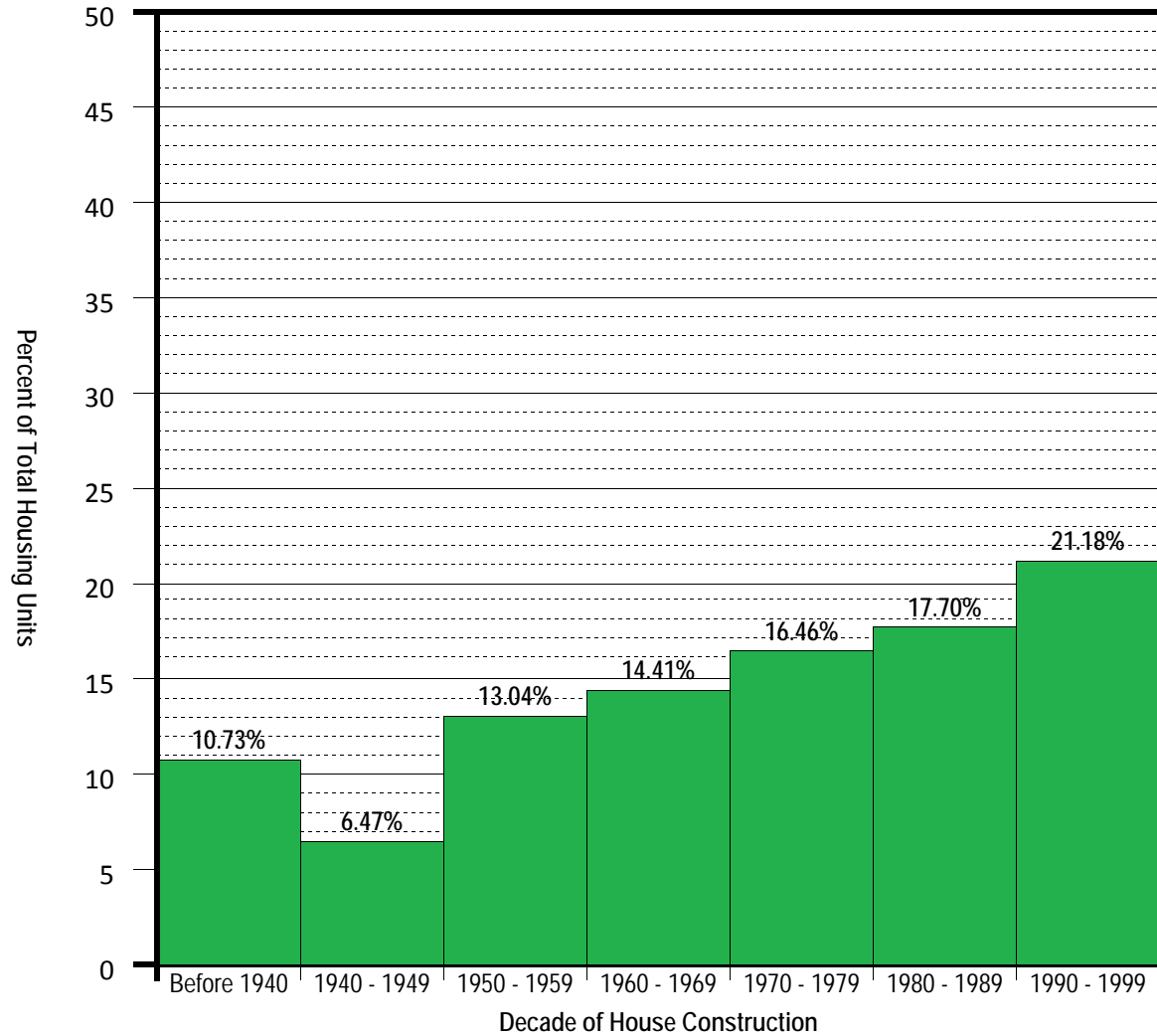
Connecticut

Number of Housing Units: **1,385,975**



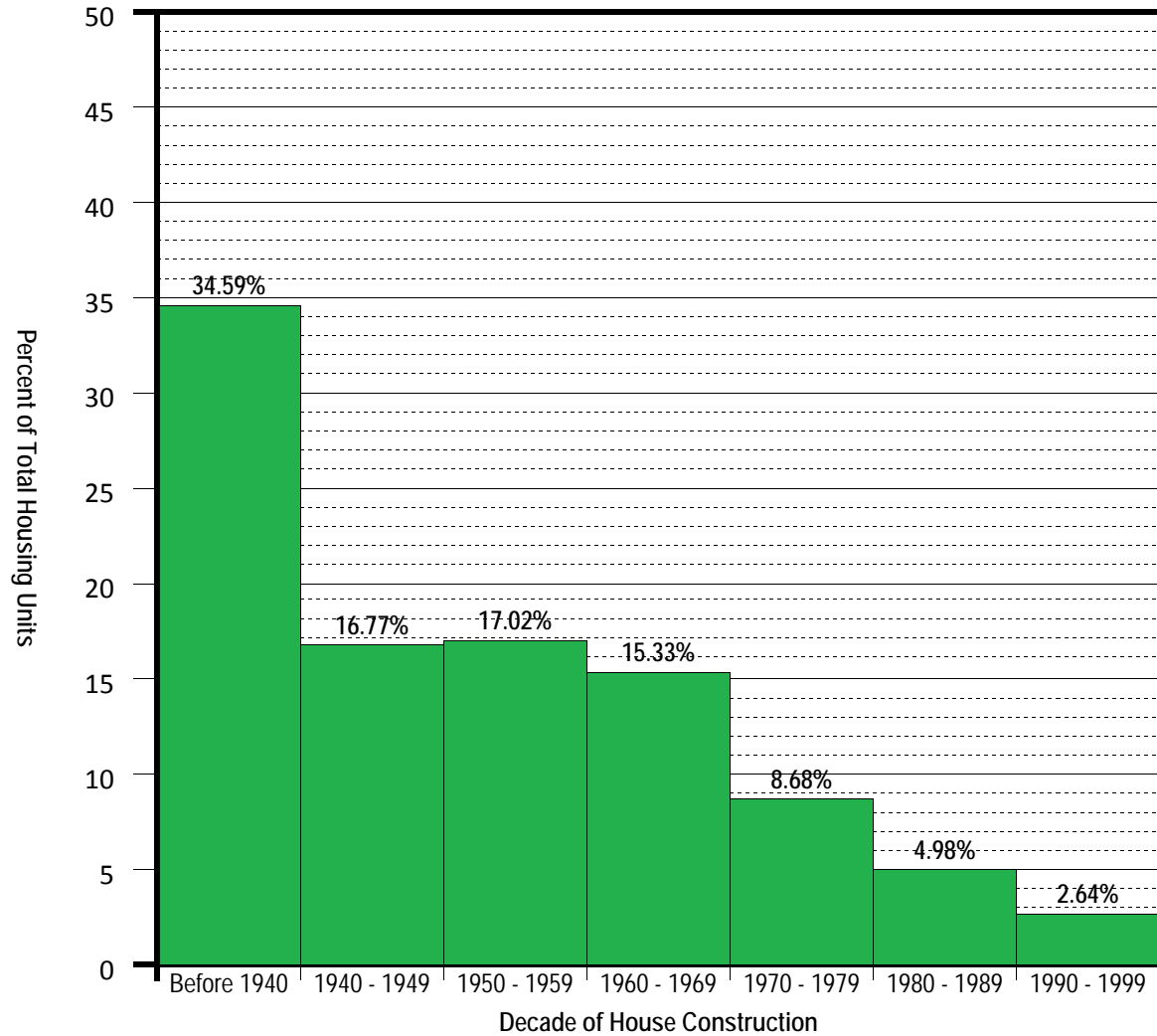
Delaware

Number of Housing Units: **343,072**



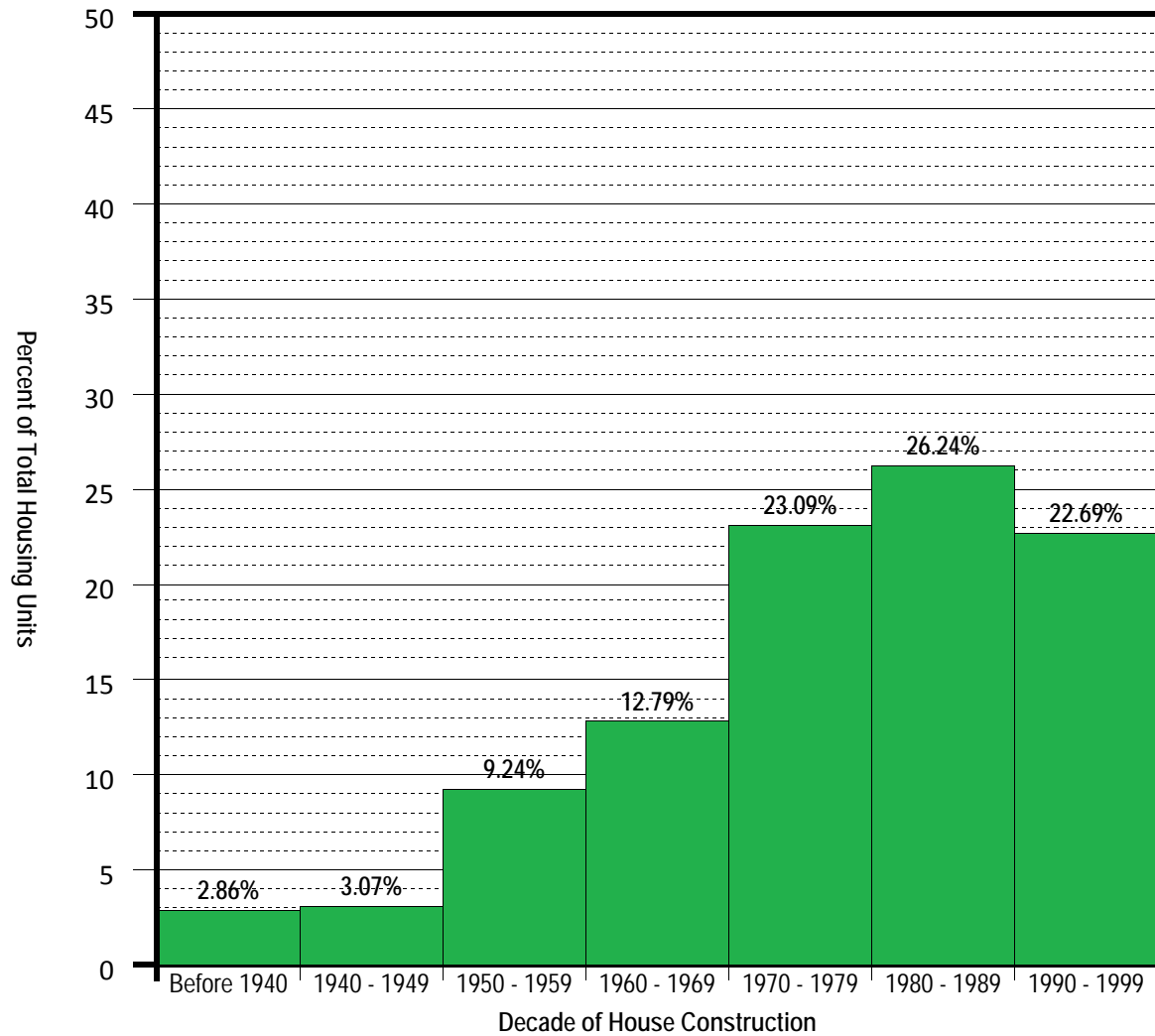
District of Columbia

Number of Housing Units: **274,845**



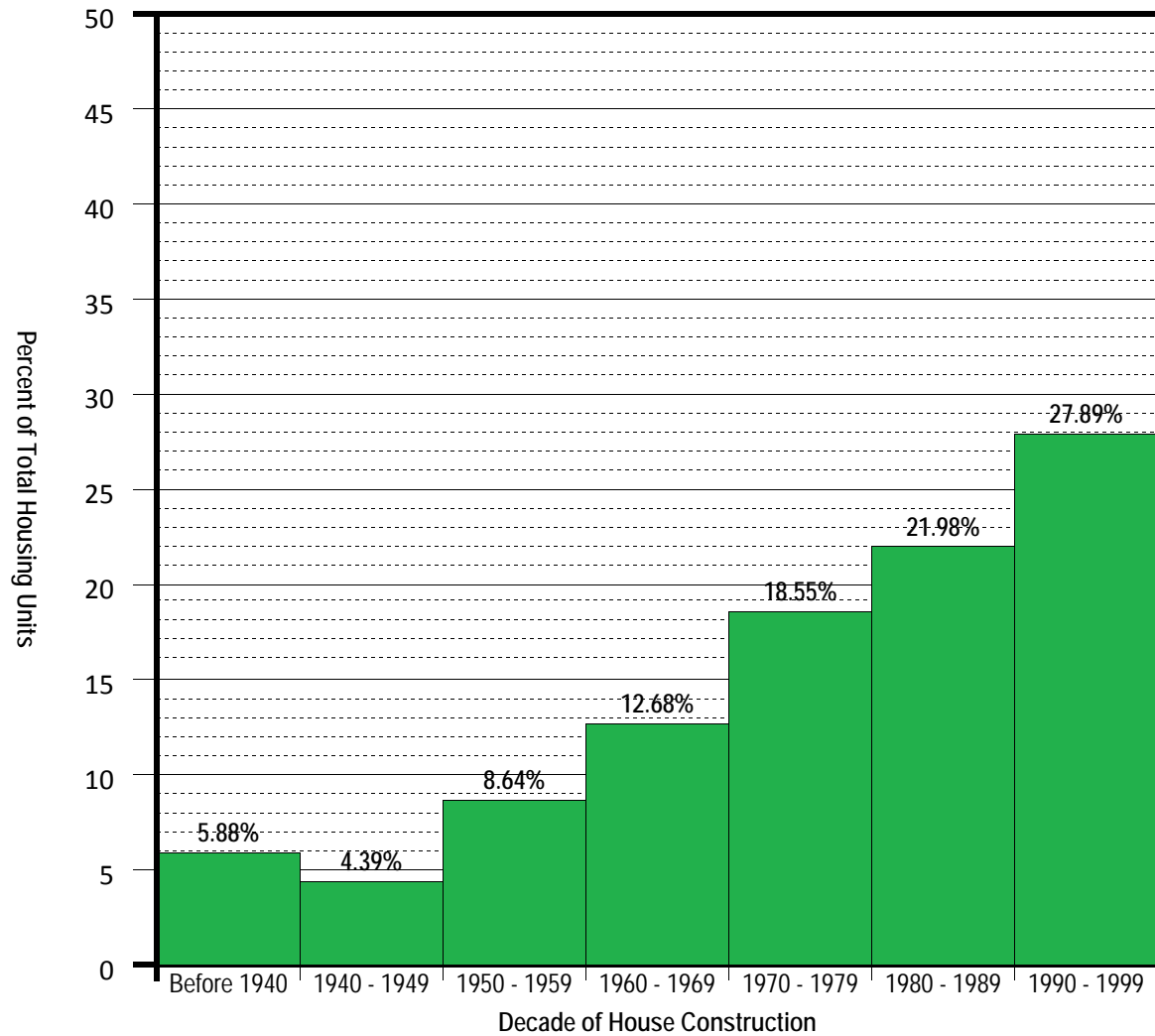
Florida

Number of Housing Units: **7,302,947**



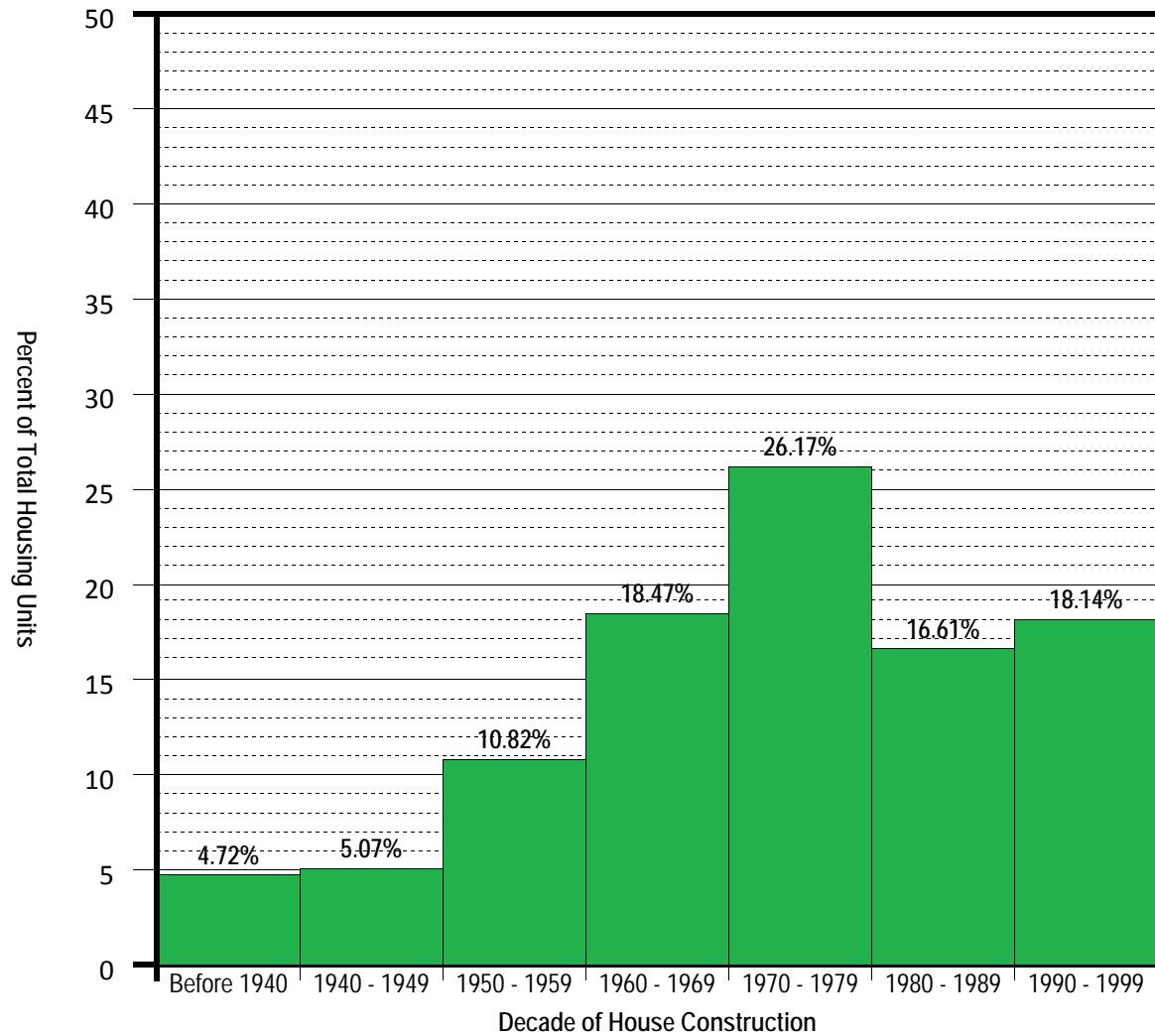
Georgia

Number of Housing Units: **3,281,737**



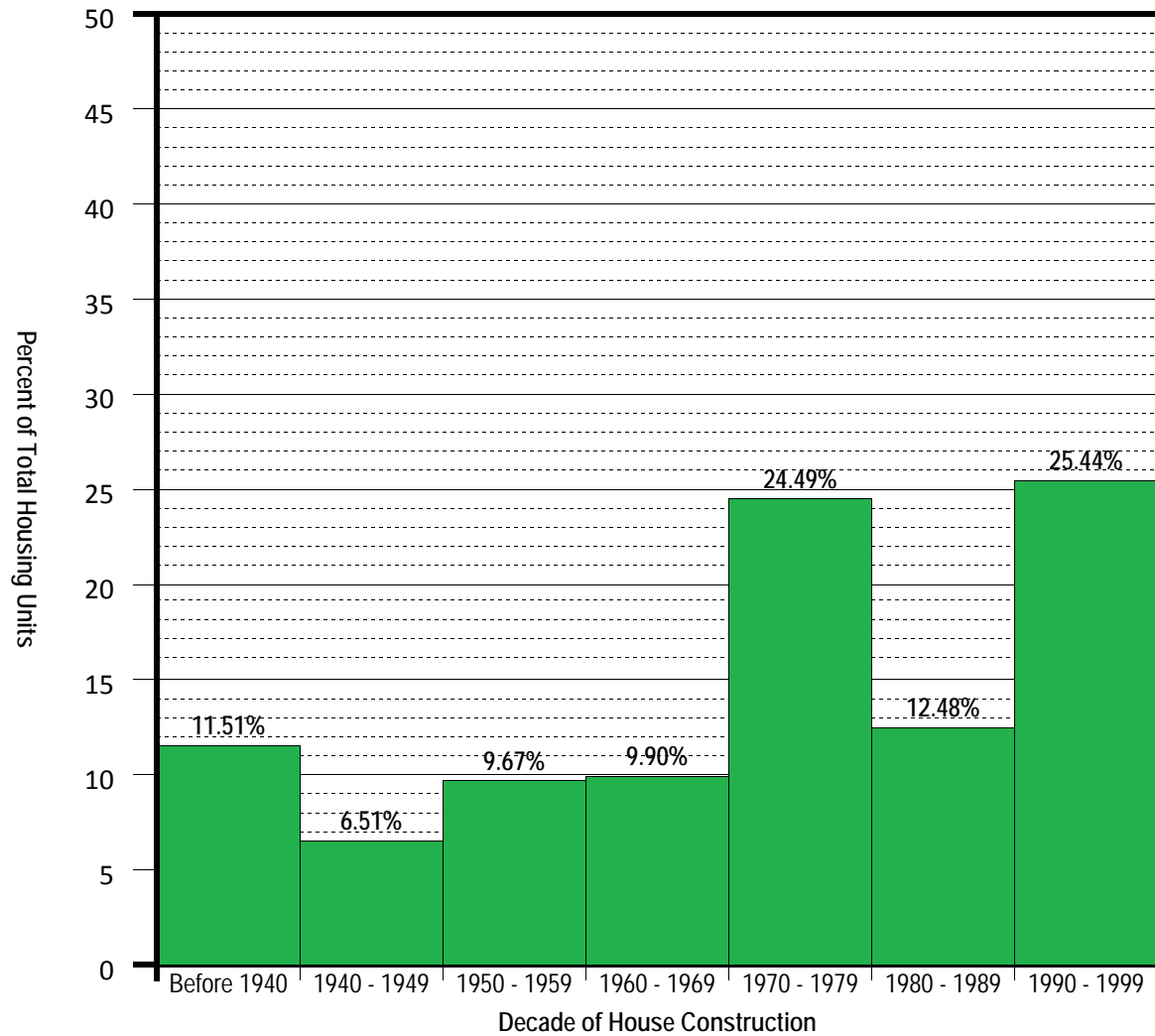
Hawaii

Number of Housing Units: **460,542**



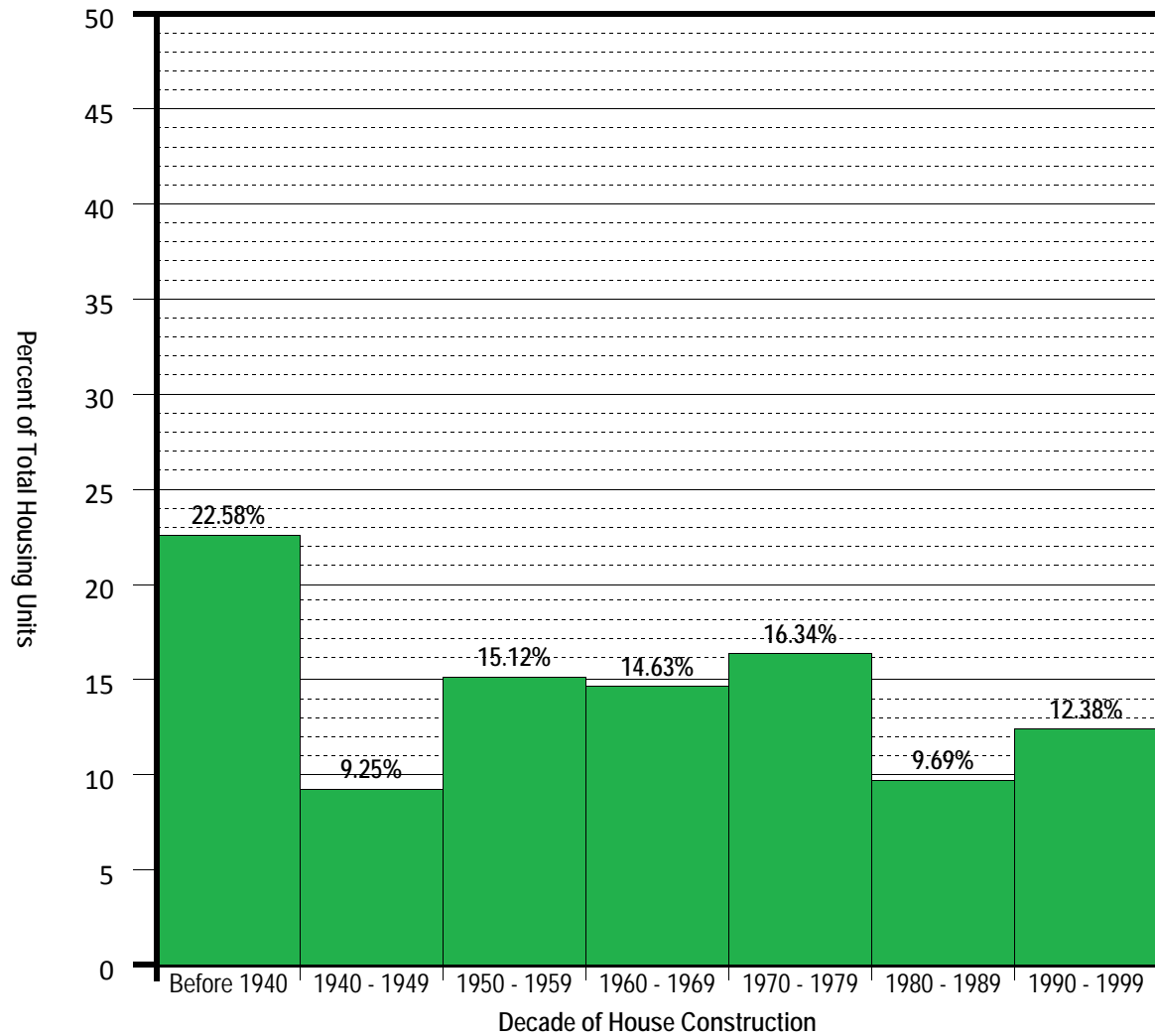
Idaho

Number of Housing Units: **527,824**



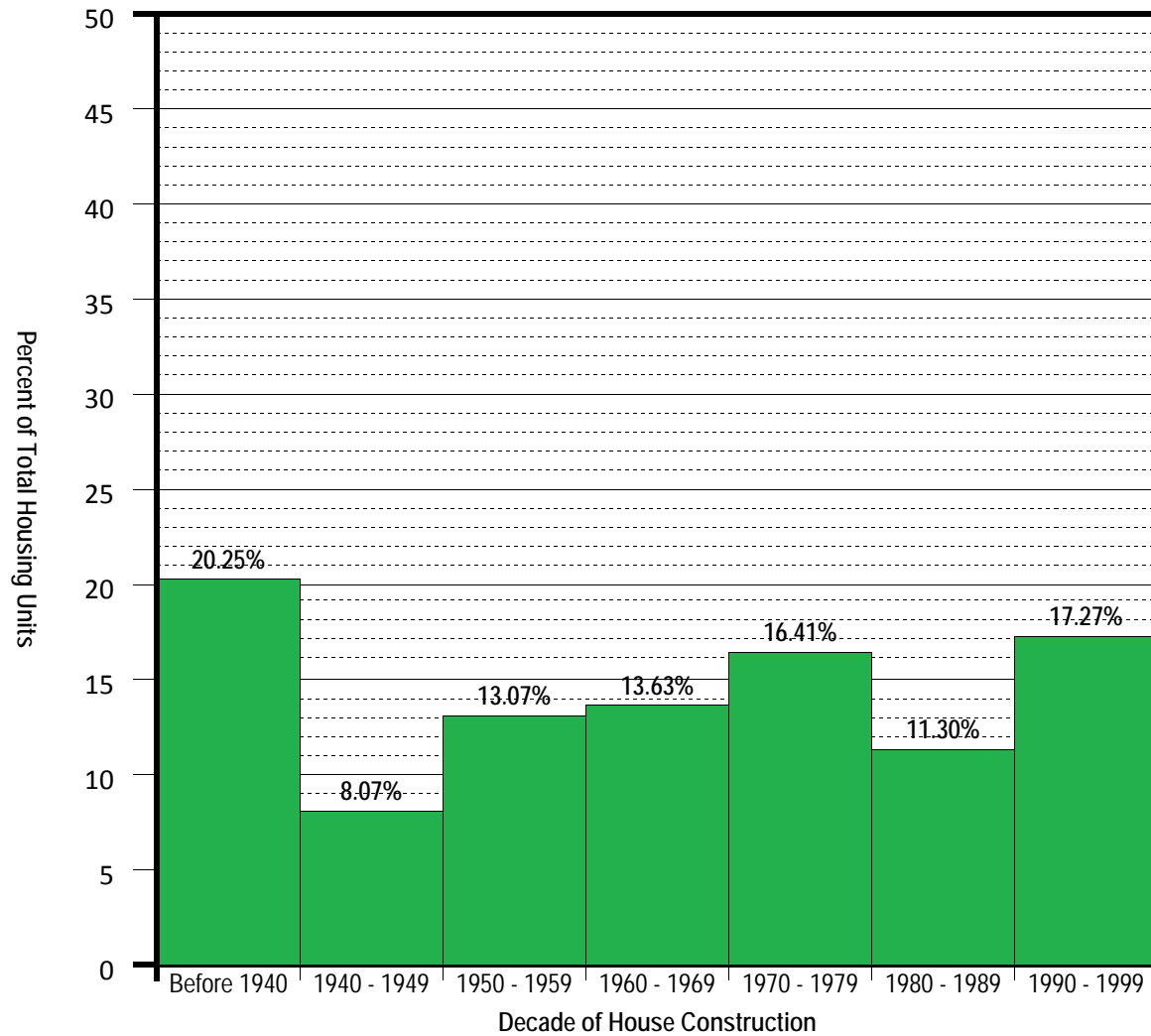
Illinois

Number of Housing Units: **4,885,615**



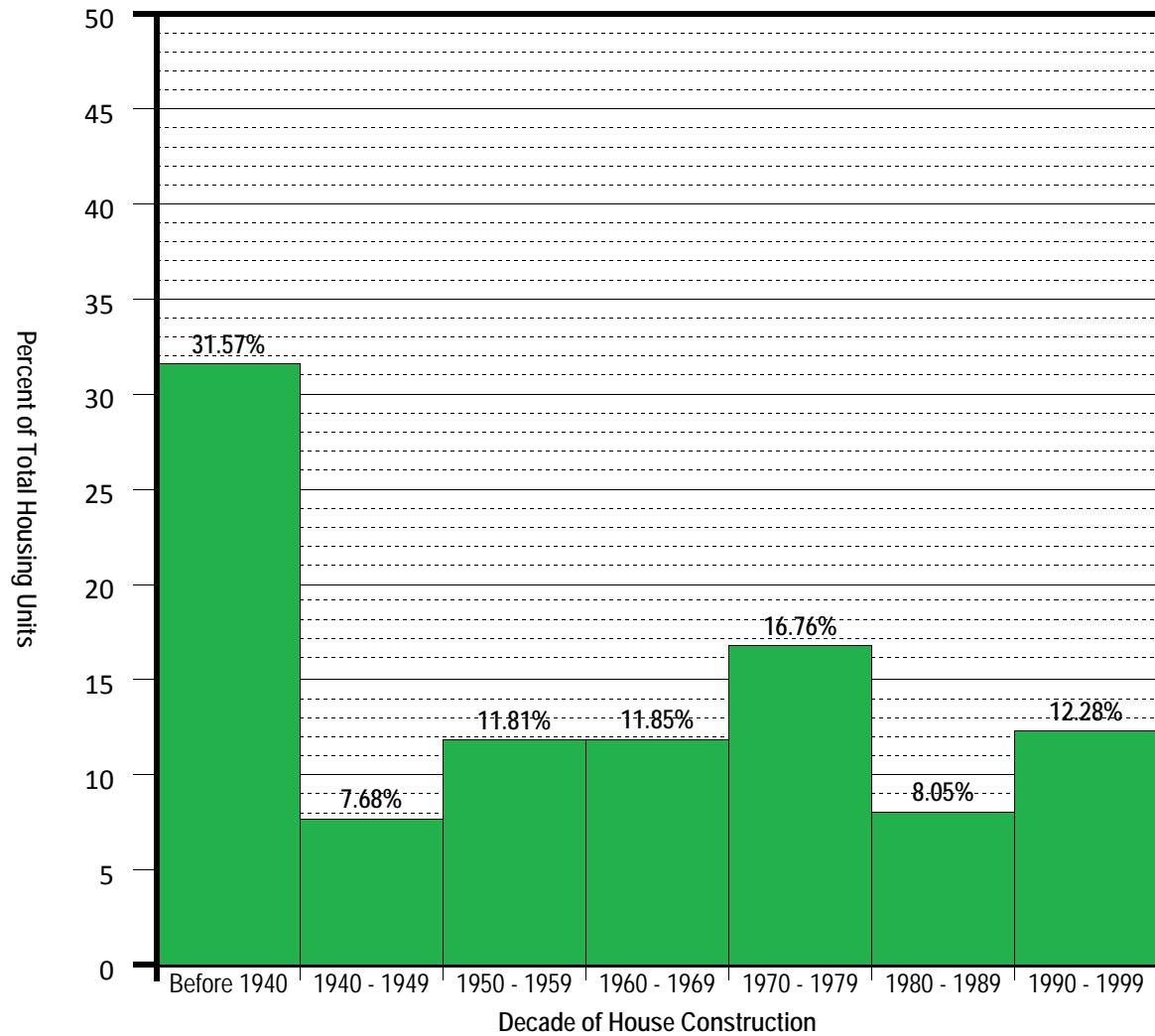
Indiana

Number of Housing Units: **2,532,319**



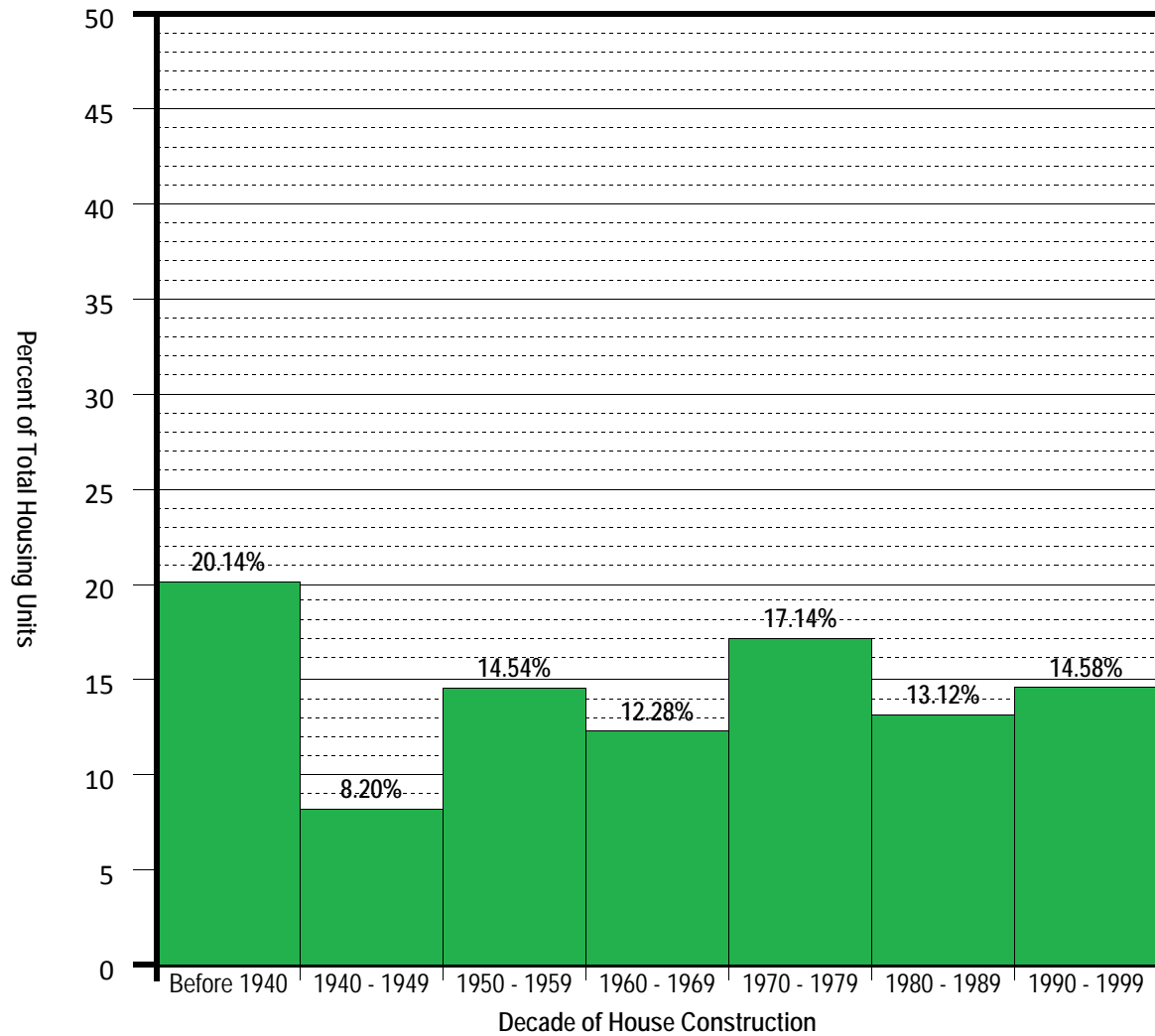
Iowa

Number of Housing Units: **1,232,511**



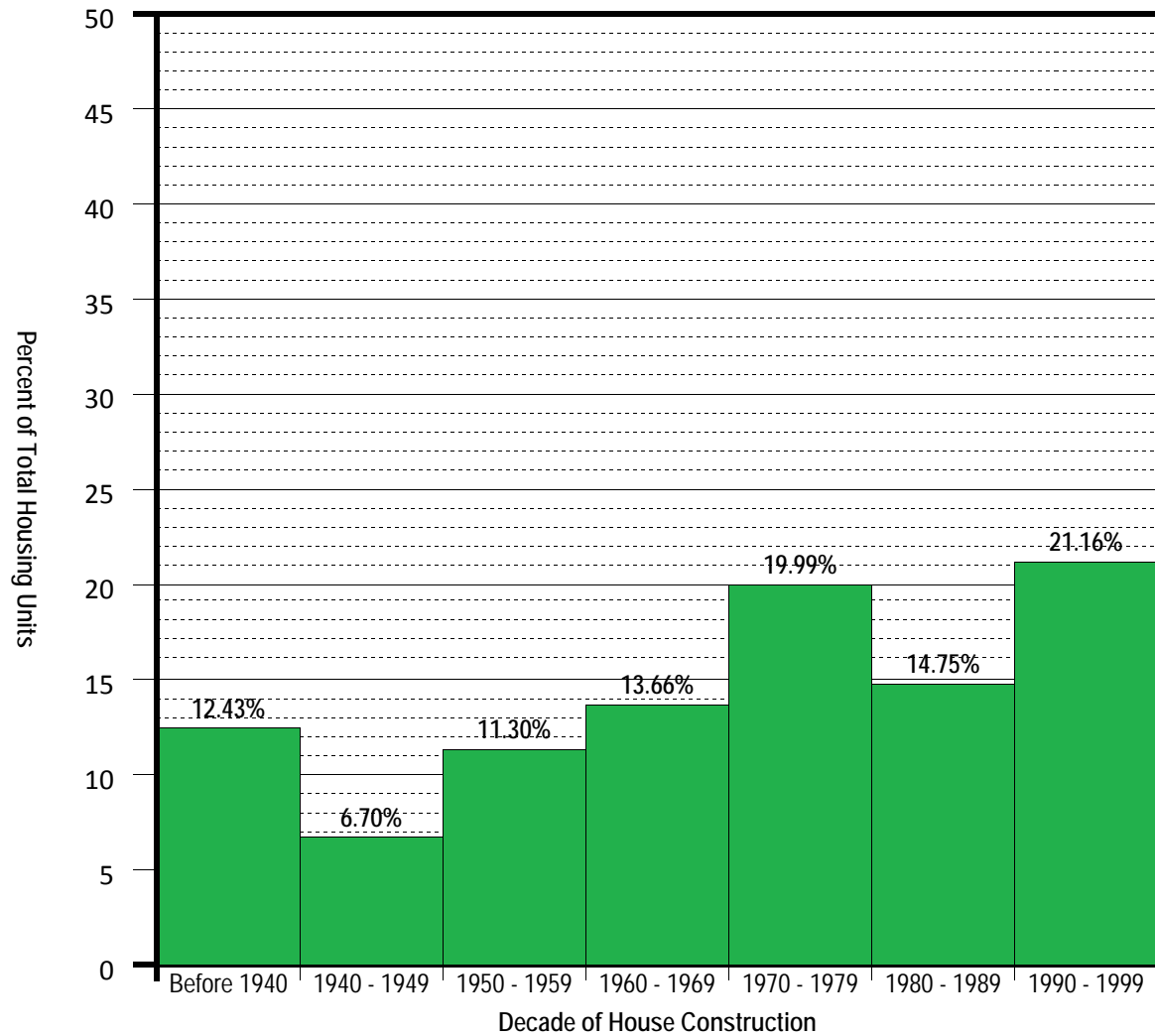
Kansas

Number of Housing Units: **1,131,200**



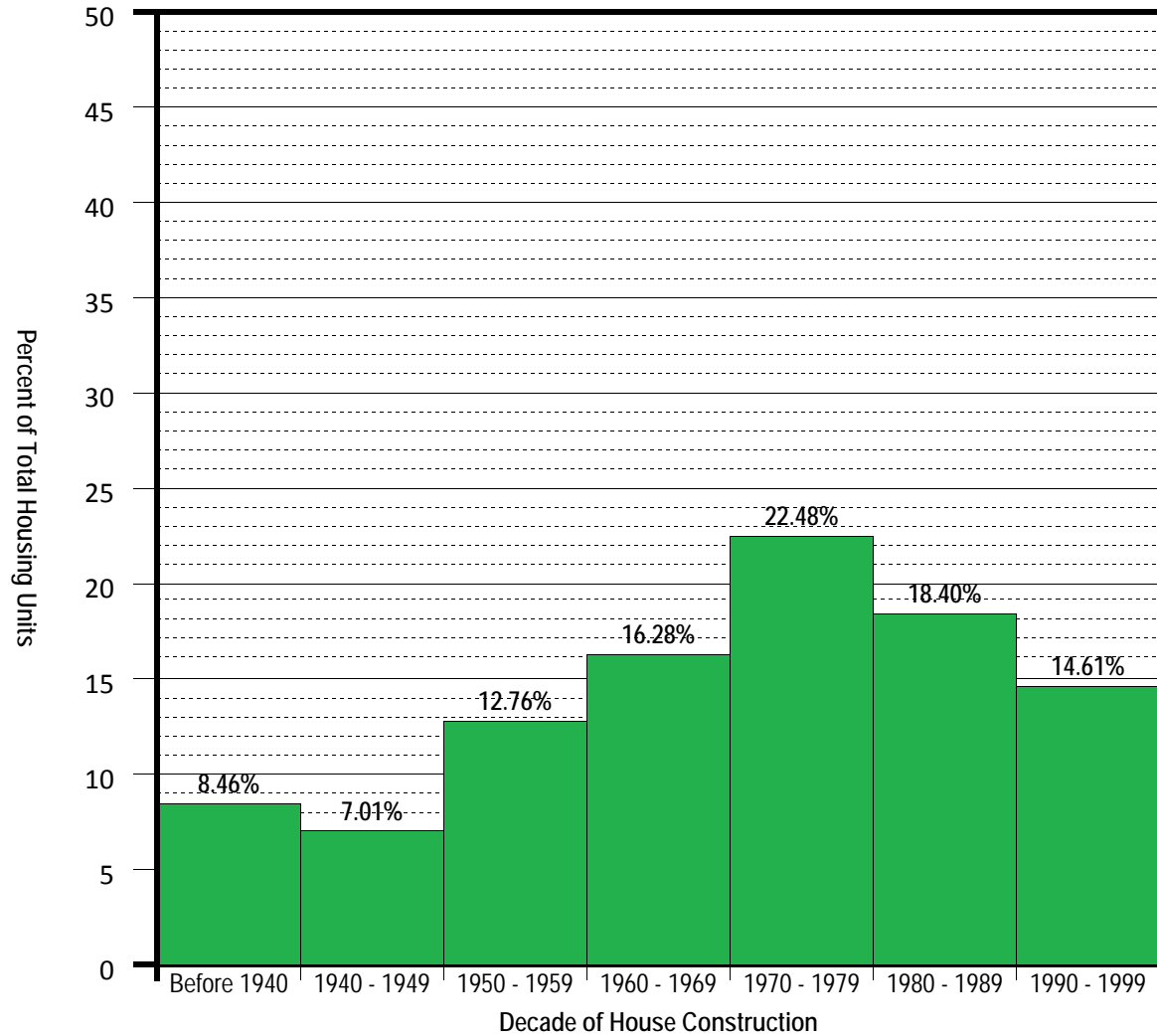
Kentucky

Number of Housing Units: **1,750,927**



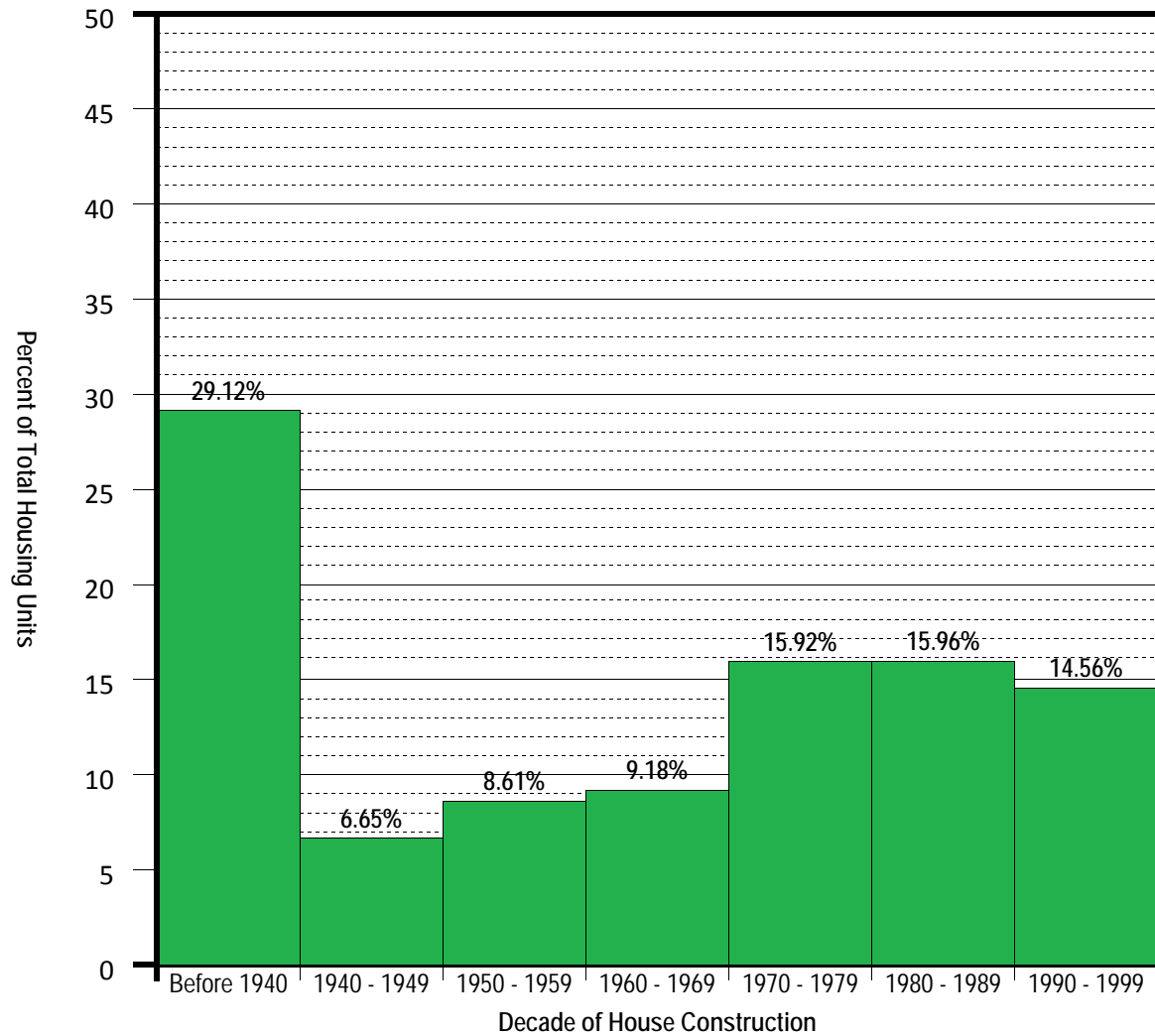
Louisiana

Number of Housing Units: **1,847,181**



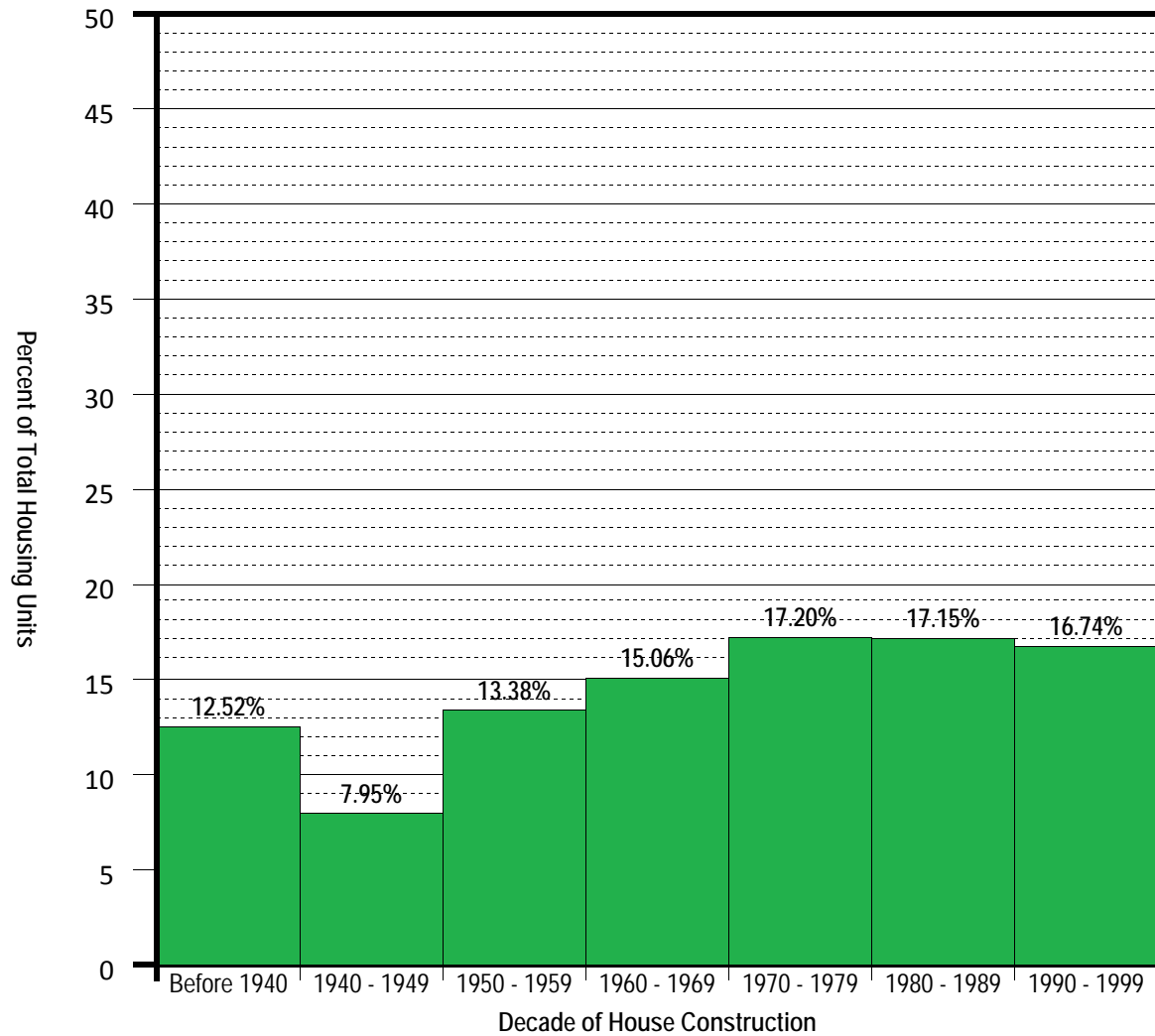
Maine

Number of Housing Units: **651,901**



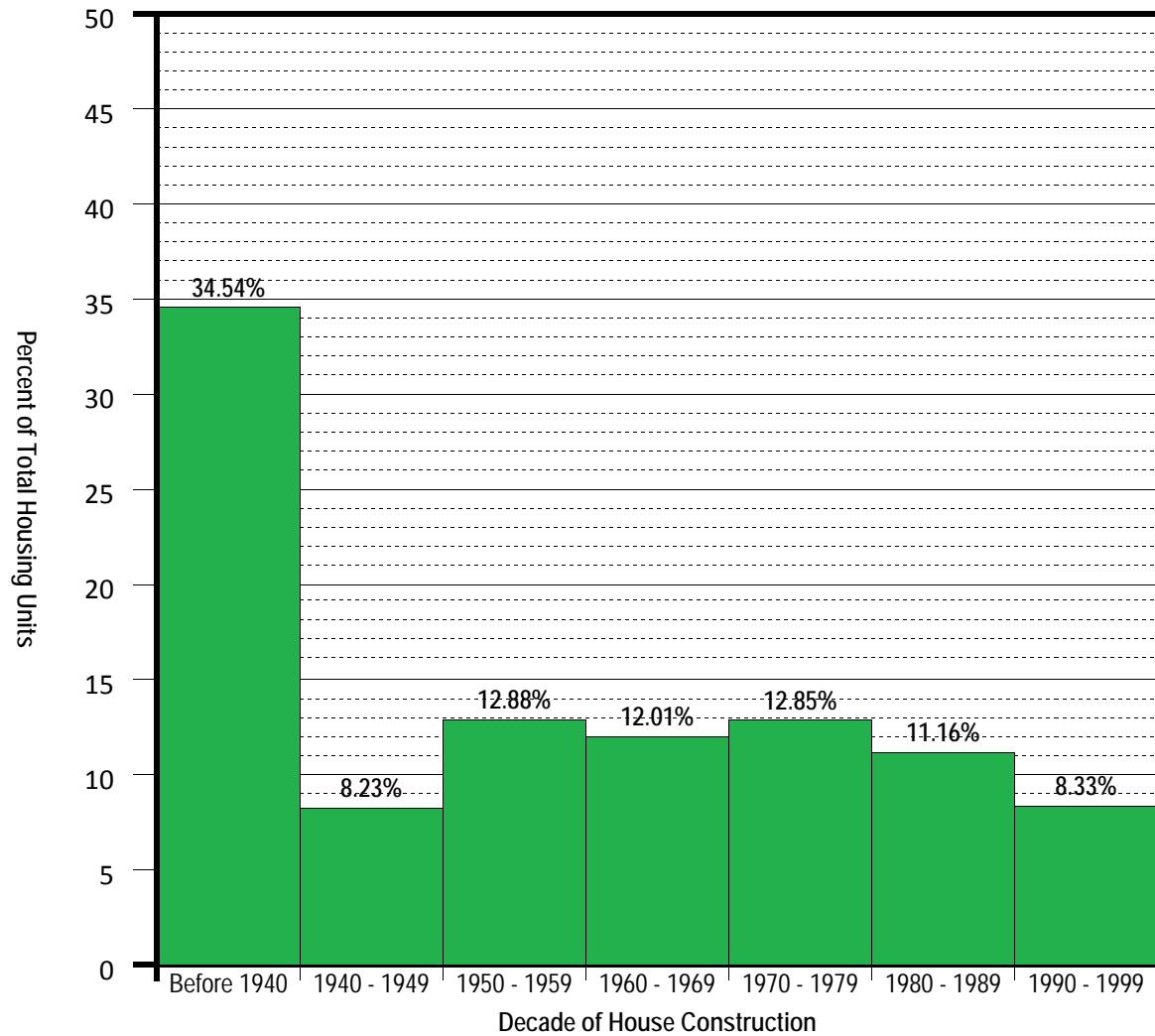
Maryland

Number of Housing Units: **2,145,283**



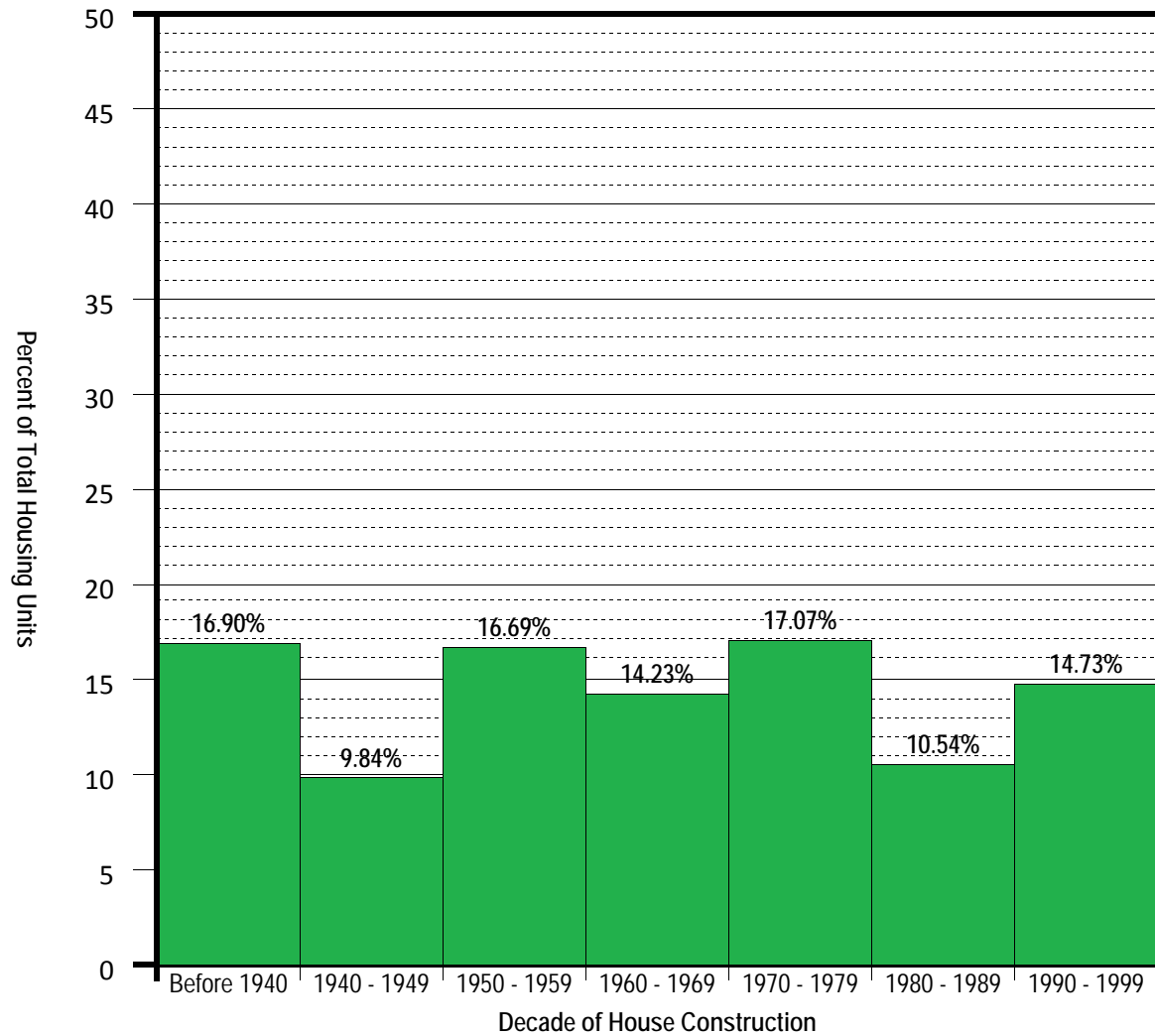
Massachusetts

Number of Housing Units: **2,621,989**



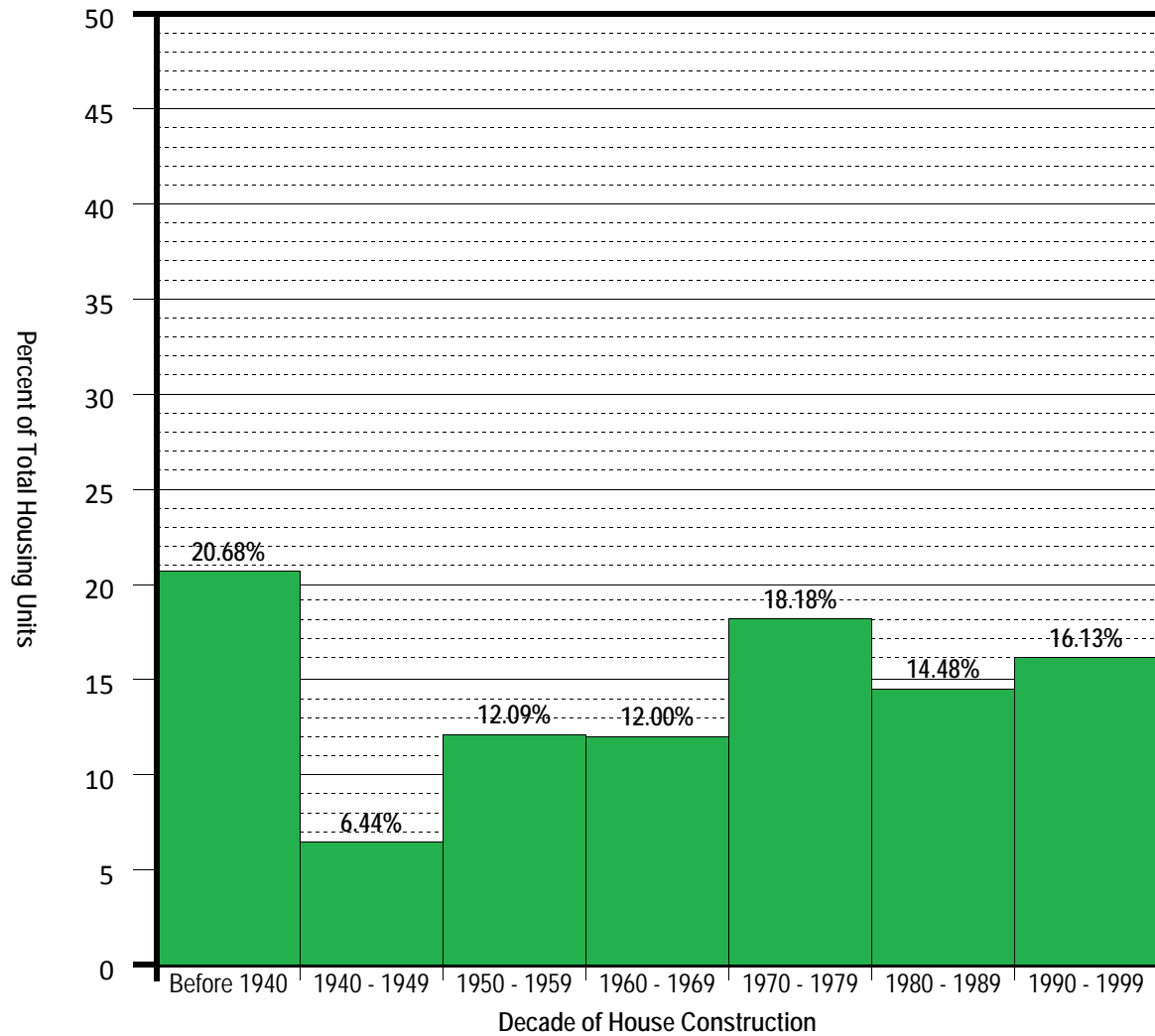
Michigan

Number of Housing Units: **4,234,279**



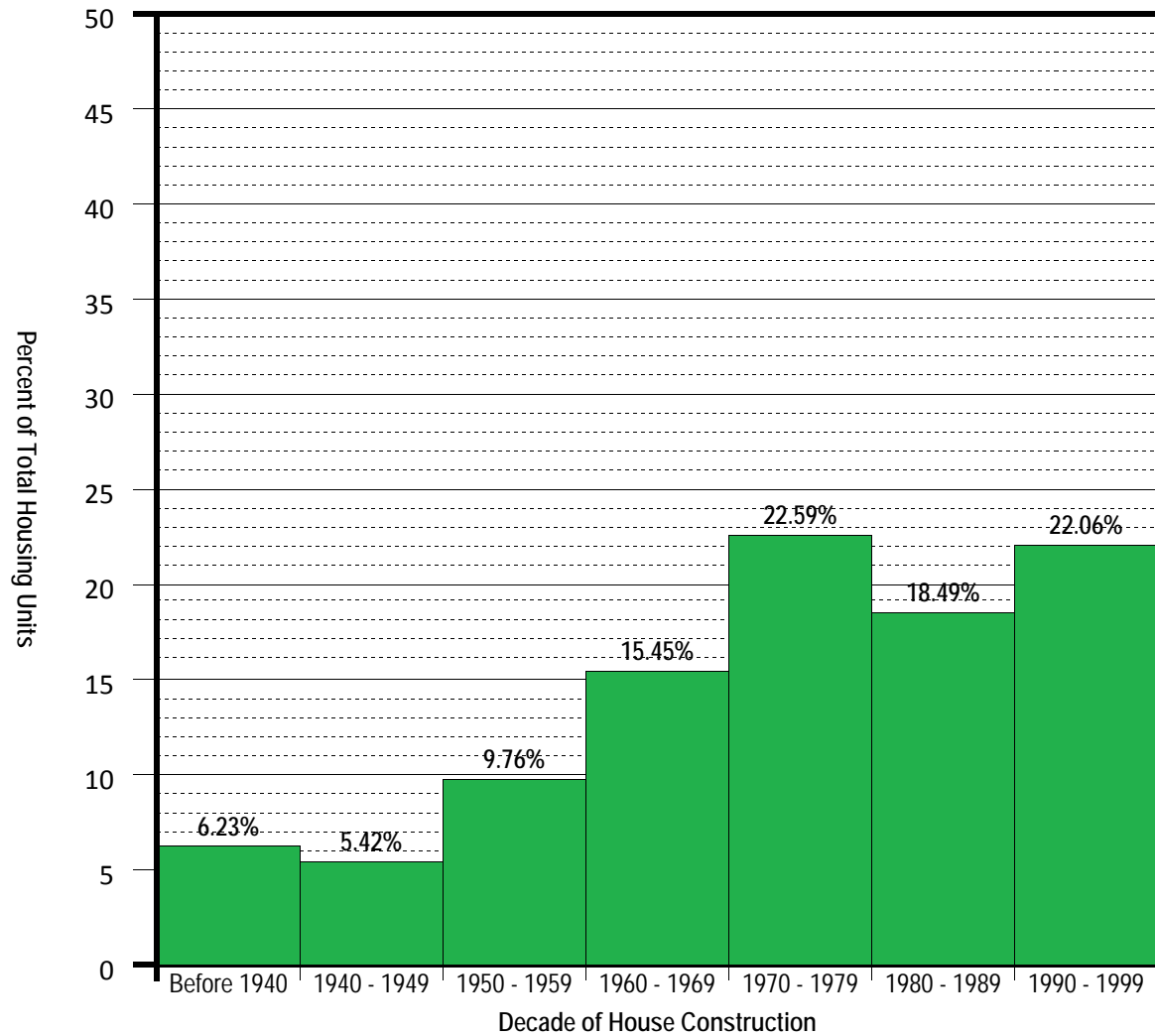
Minnesota

Number of Housing Units: **2,065,946**



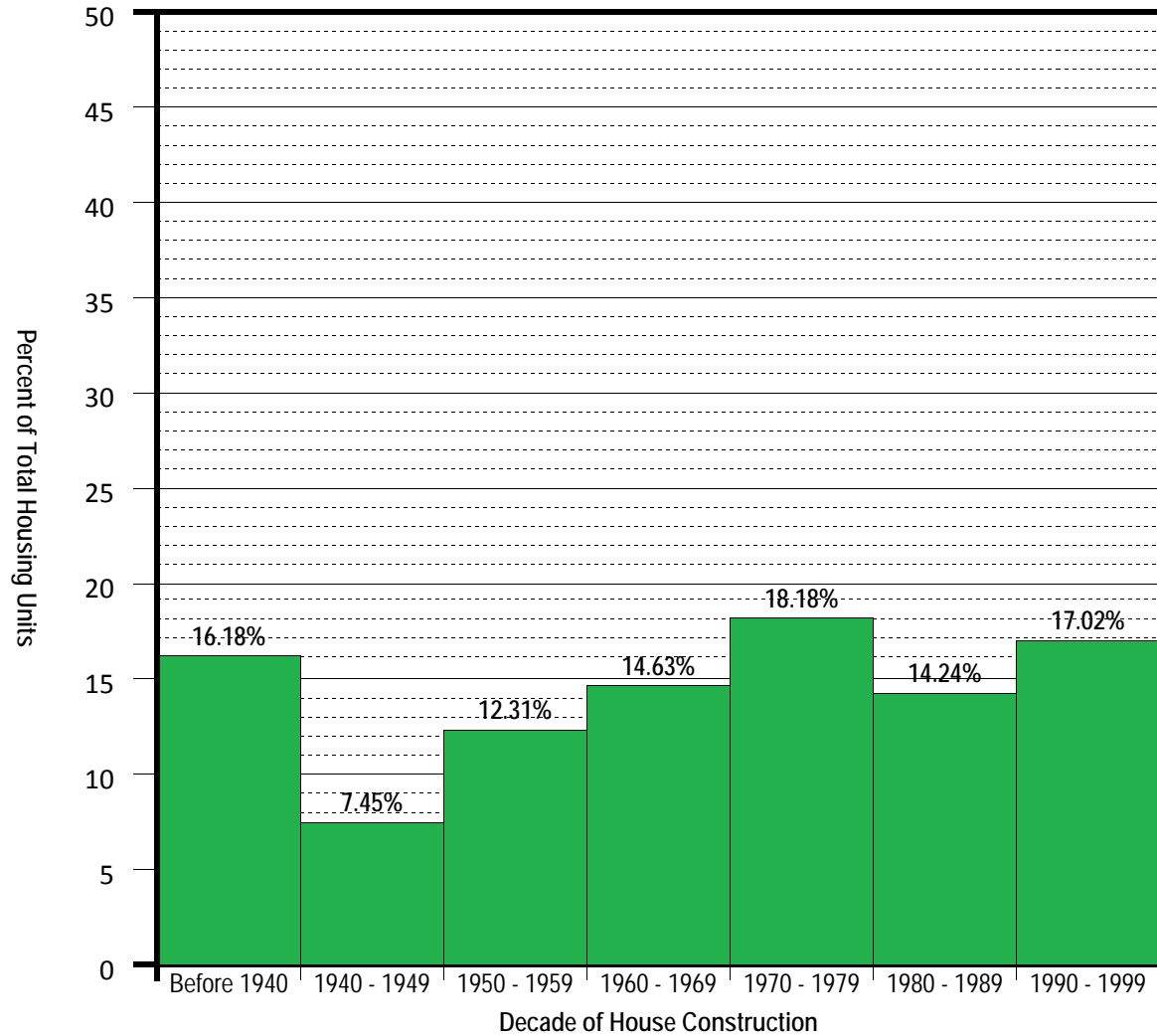
Mississippi

Number of Housing Units: **1,161,953**



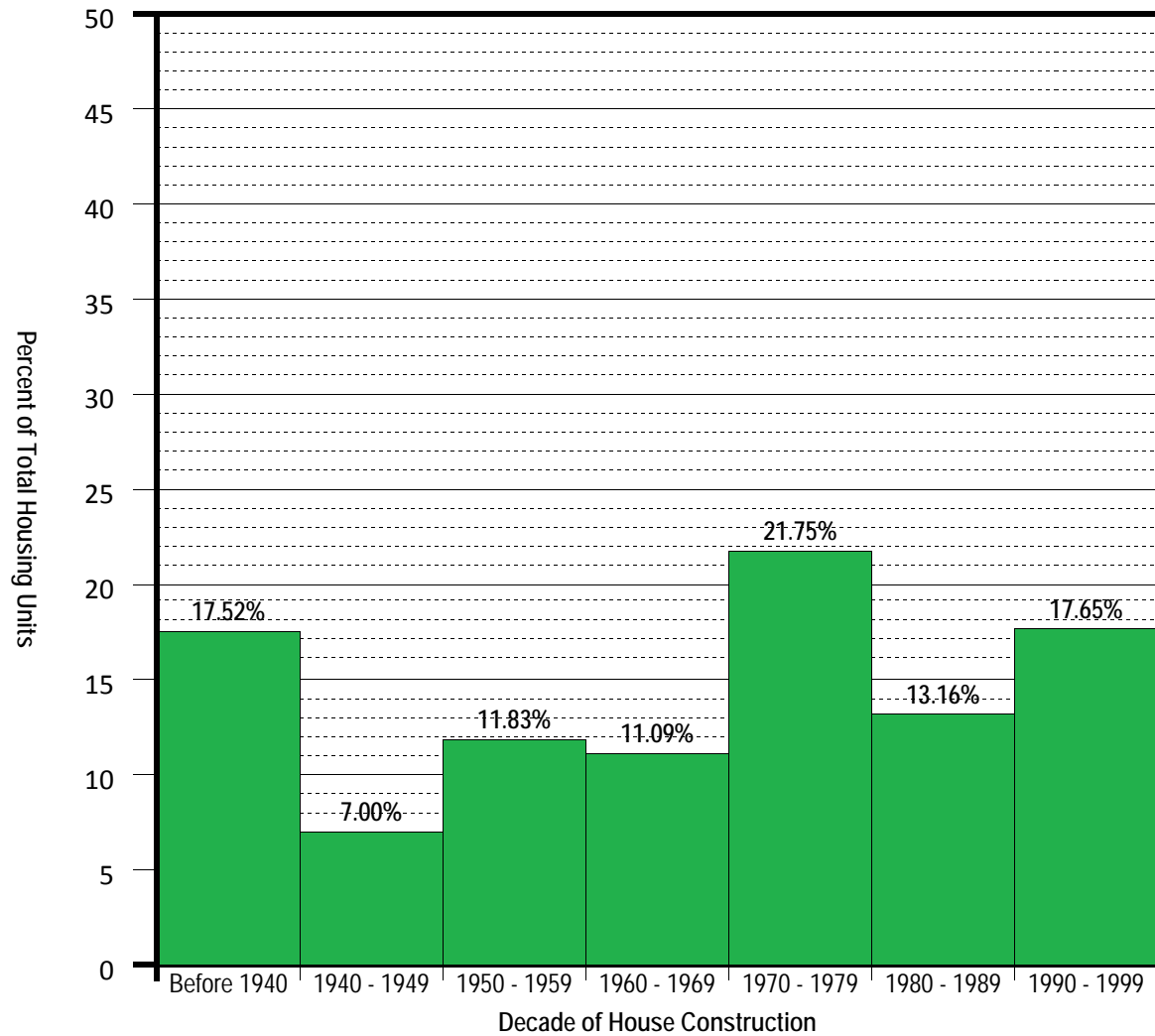
Missouri

Number of Housing Units: **2,442,017**



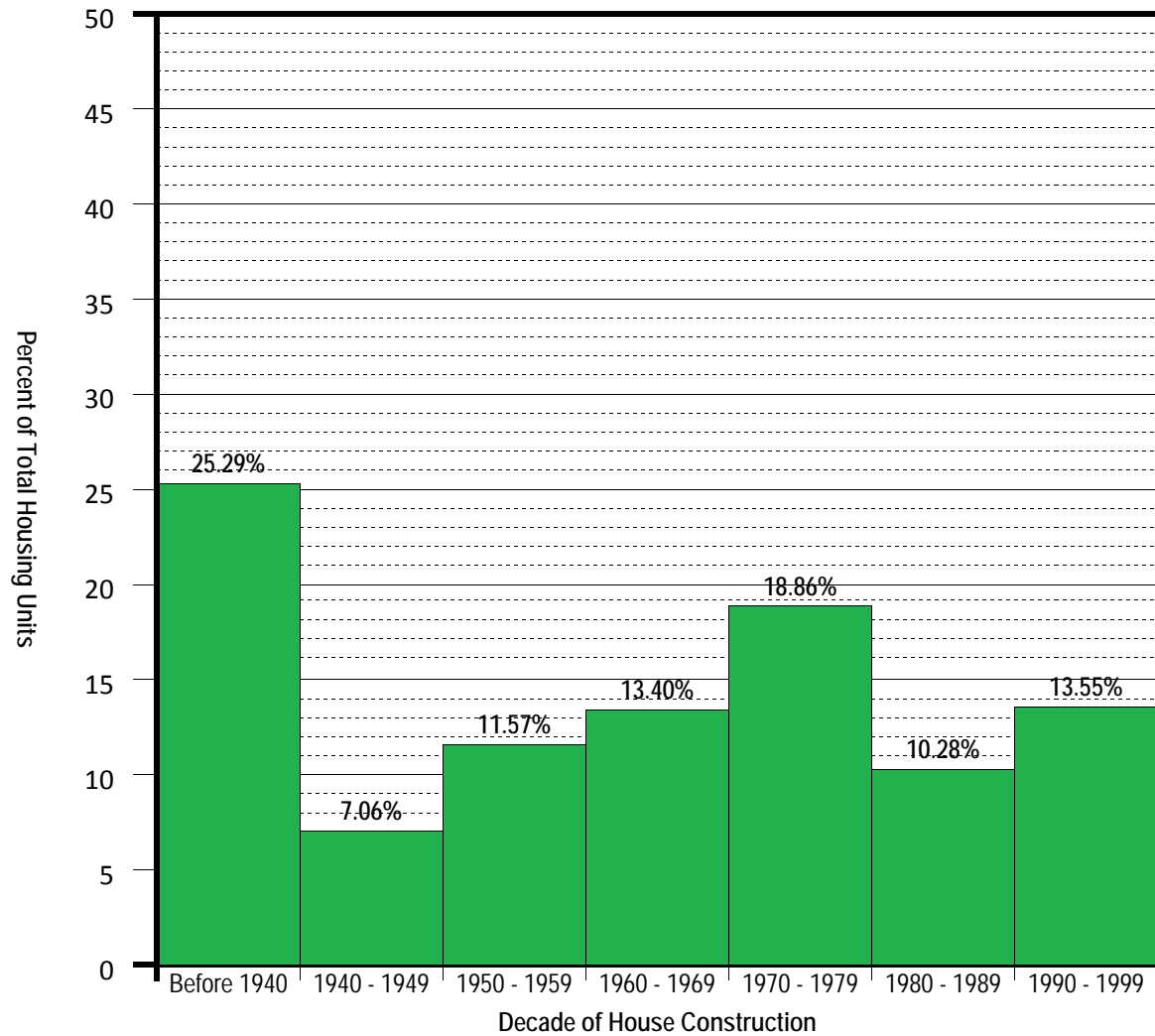
Montana

Number of Housing Units: **412,633**



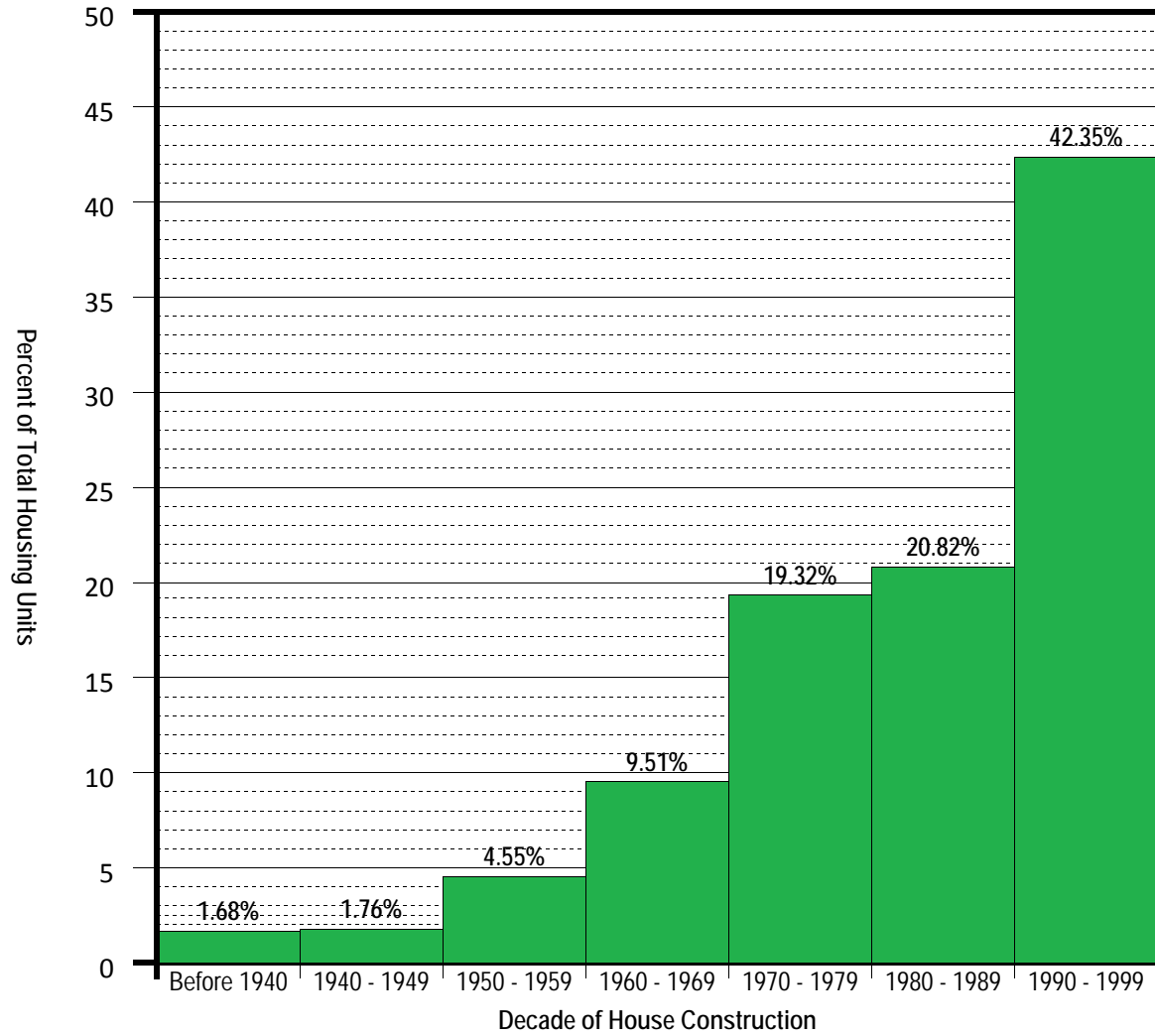
Nebraska

Number of Housing Units: **722,668**



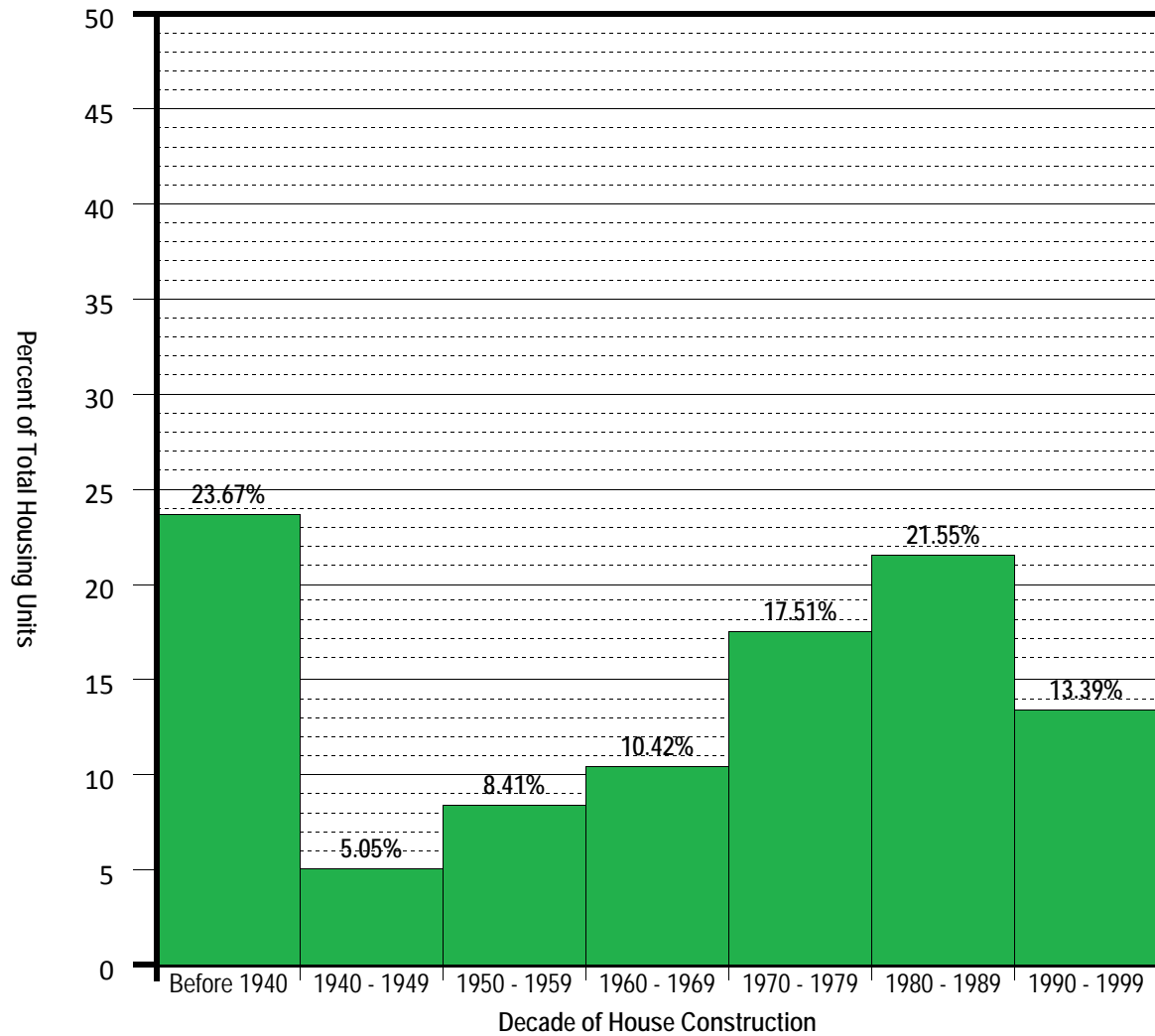
Nevada

Number of Housing Units: **827,457**



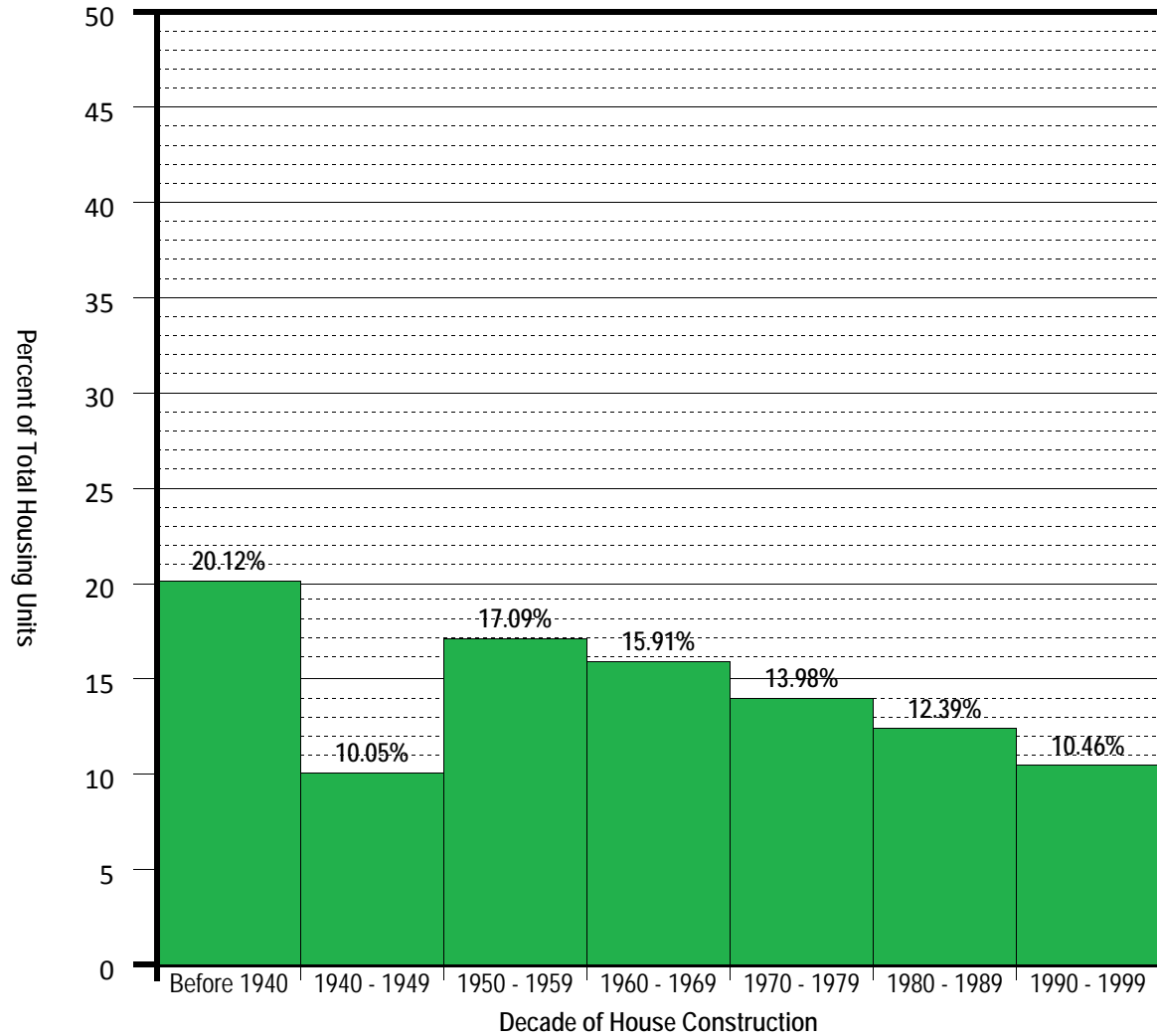
New Hampshire

Number of Housing Units: **547,024**



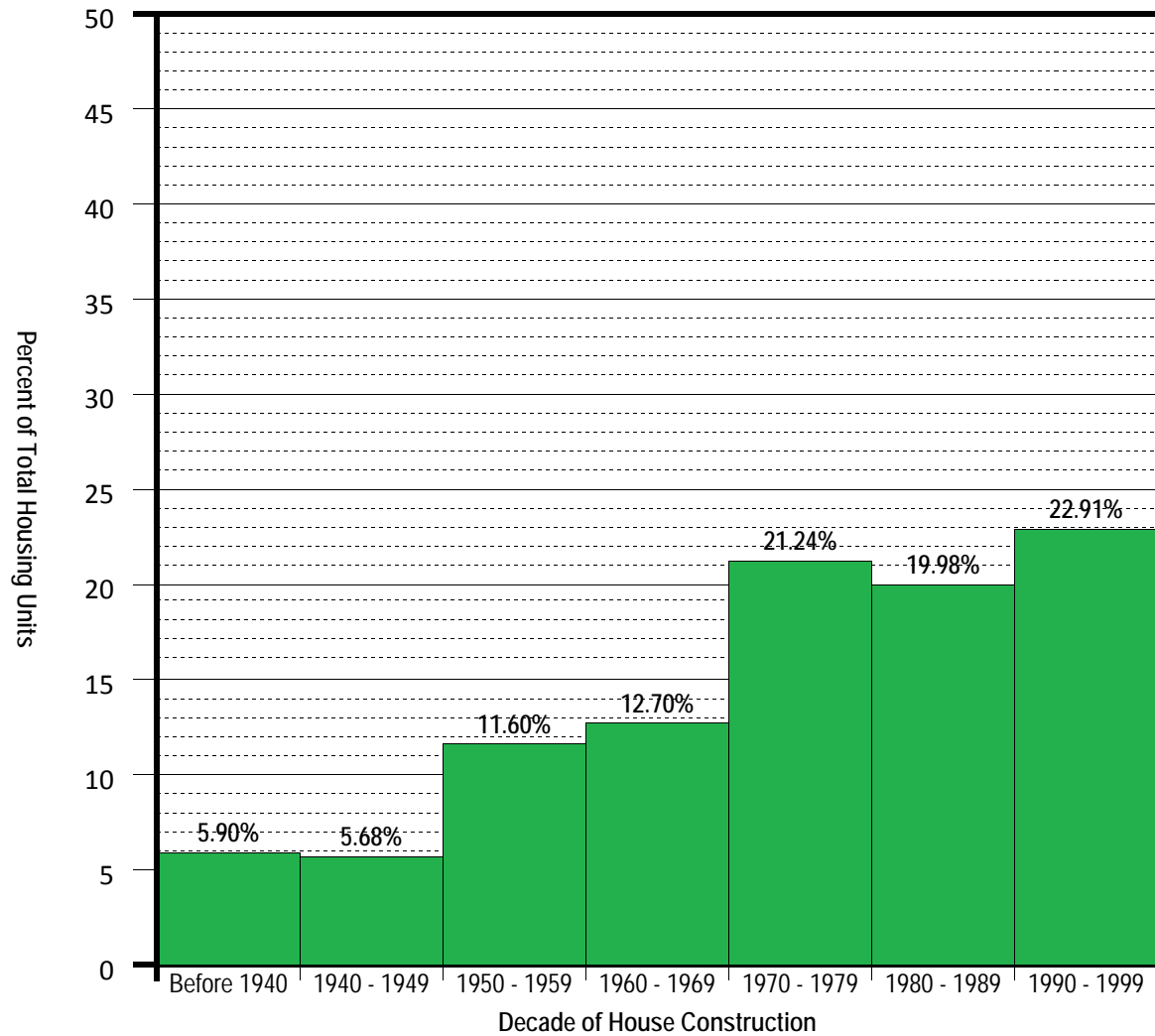
New Jersey

Number of Housing Units: **3,310,275**



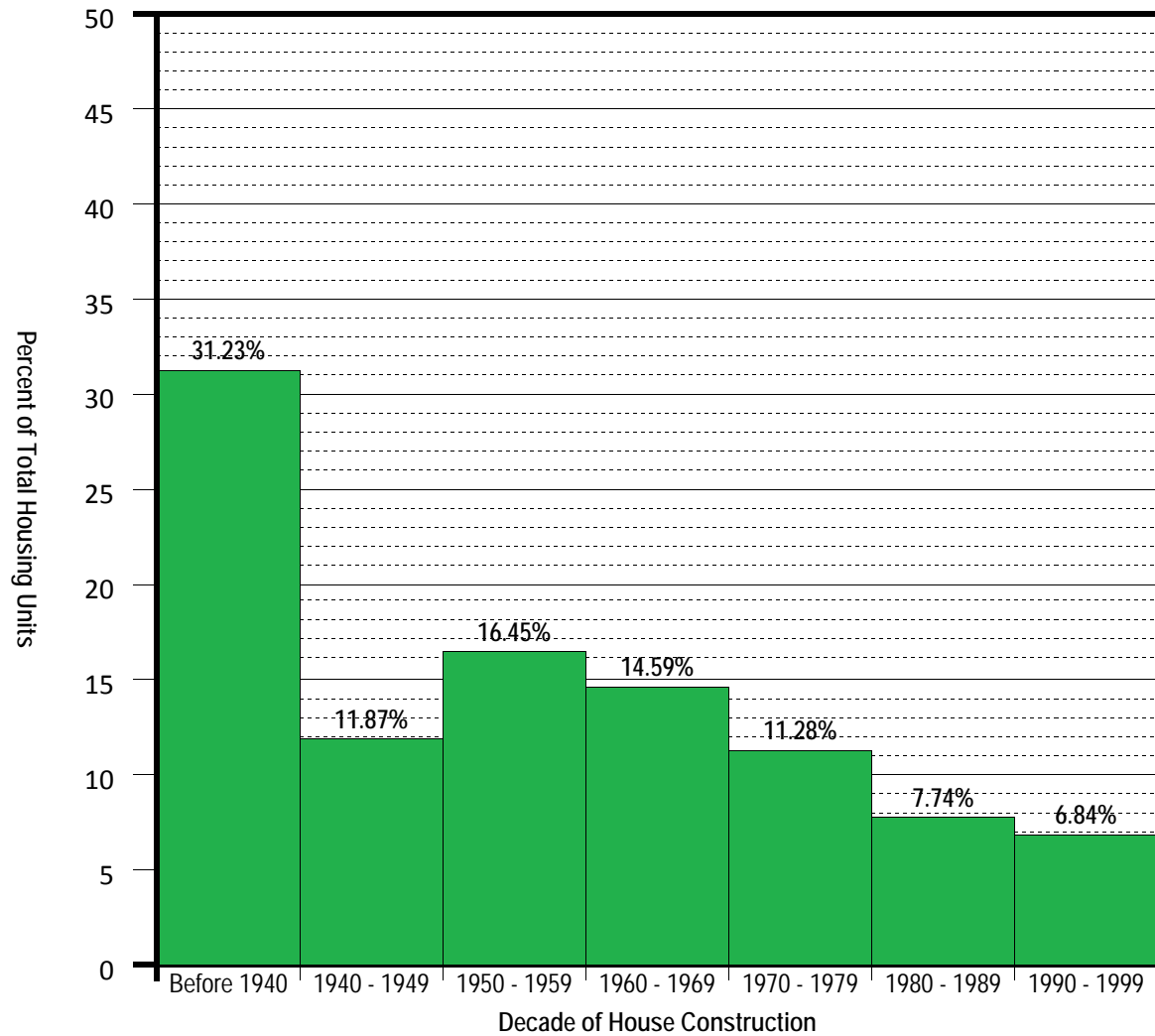
New Mexico

Number of Housing Units: **780,579**



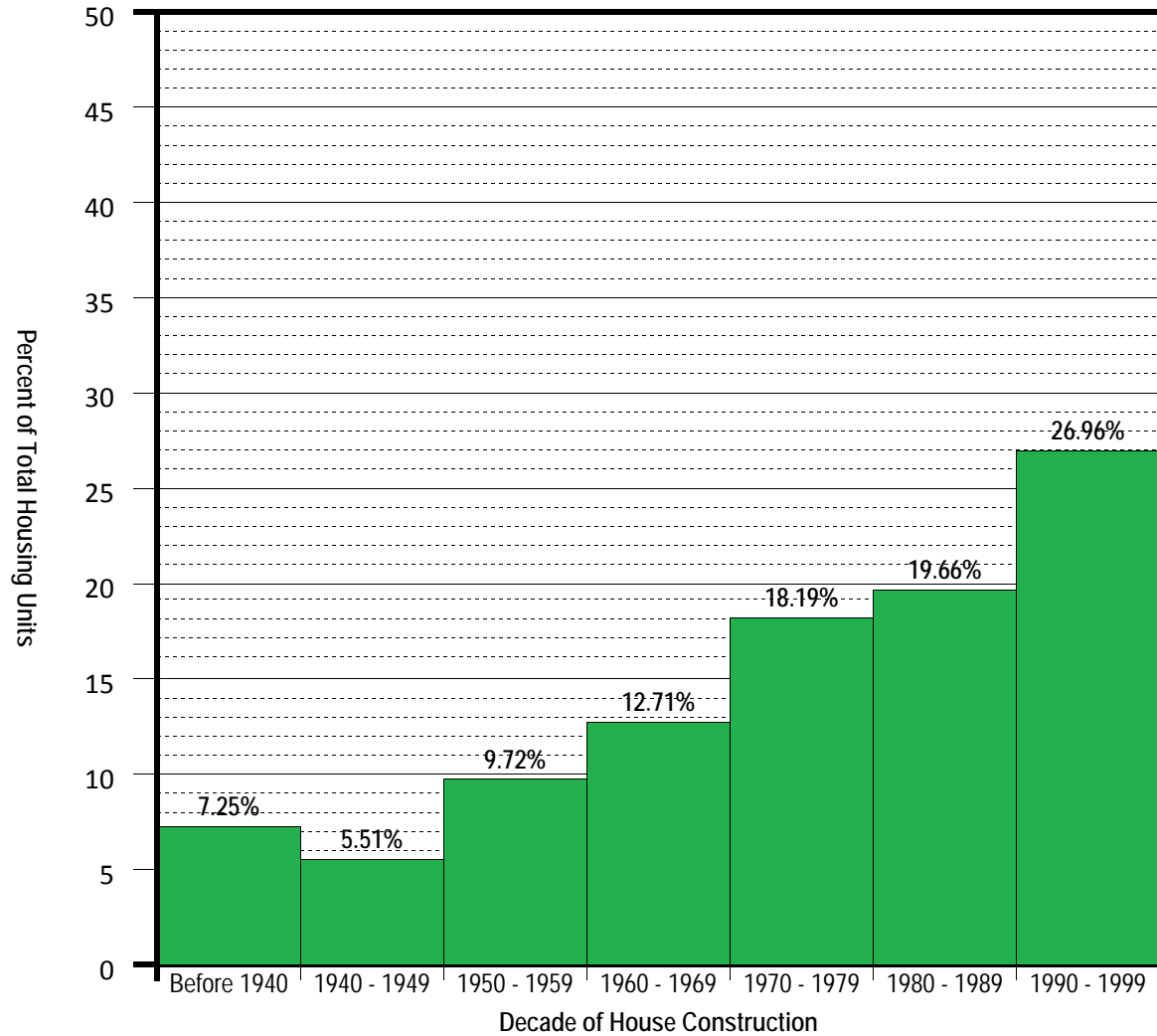
New York

Number of Housing Units: **7,679,307**



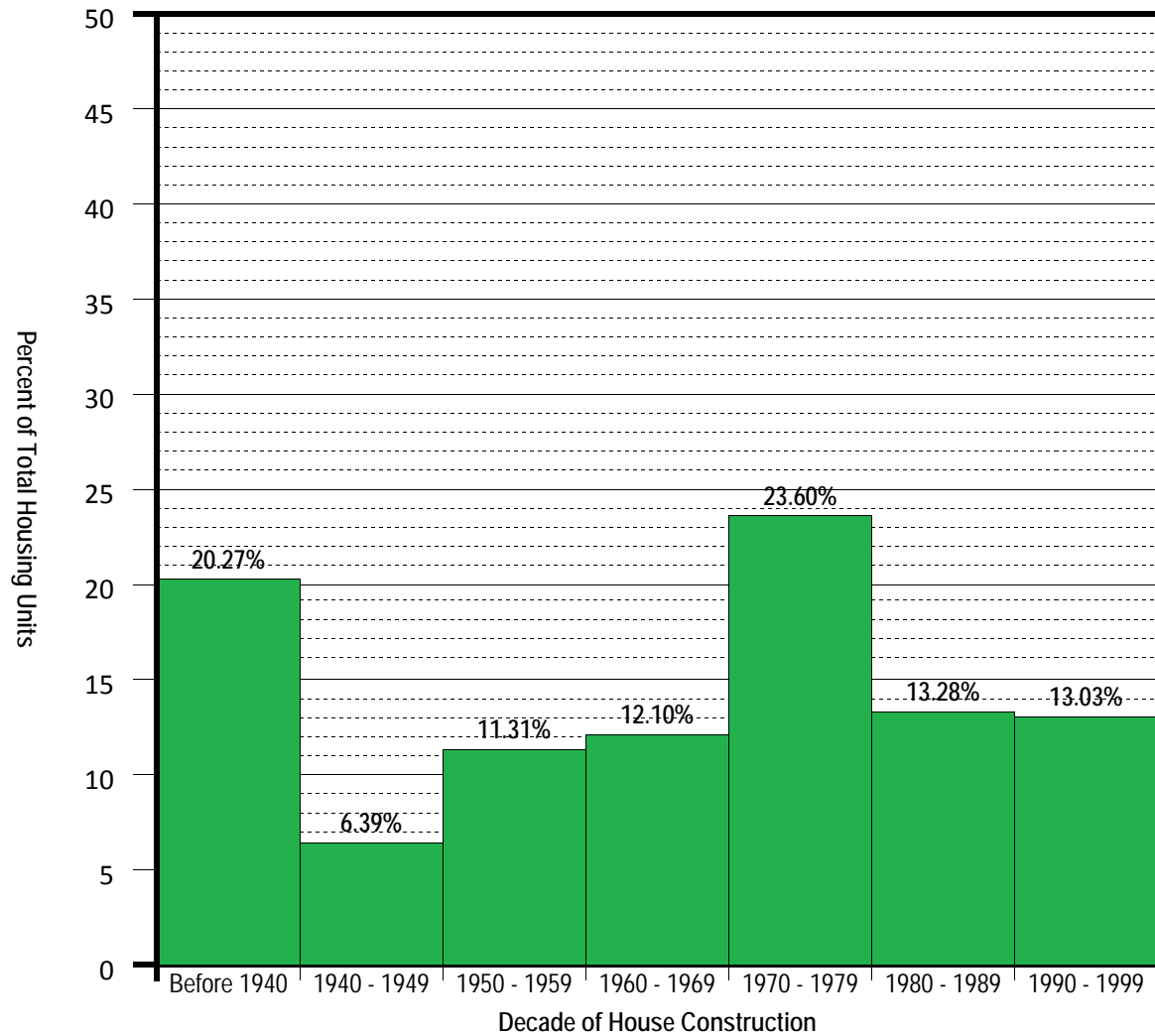
North Carolina

Number of Housing Units: **3,523,944**



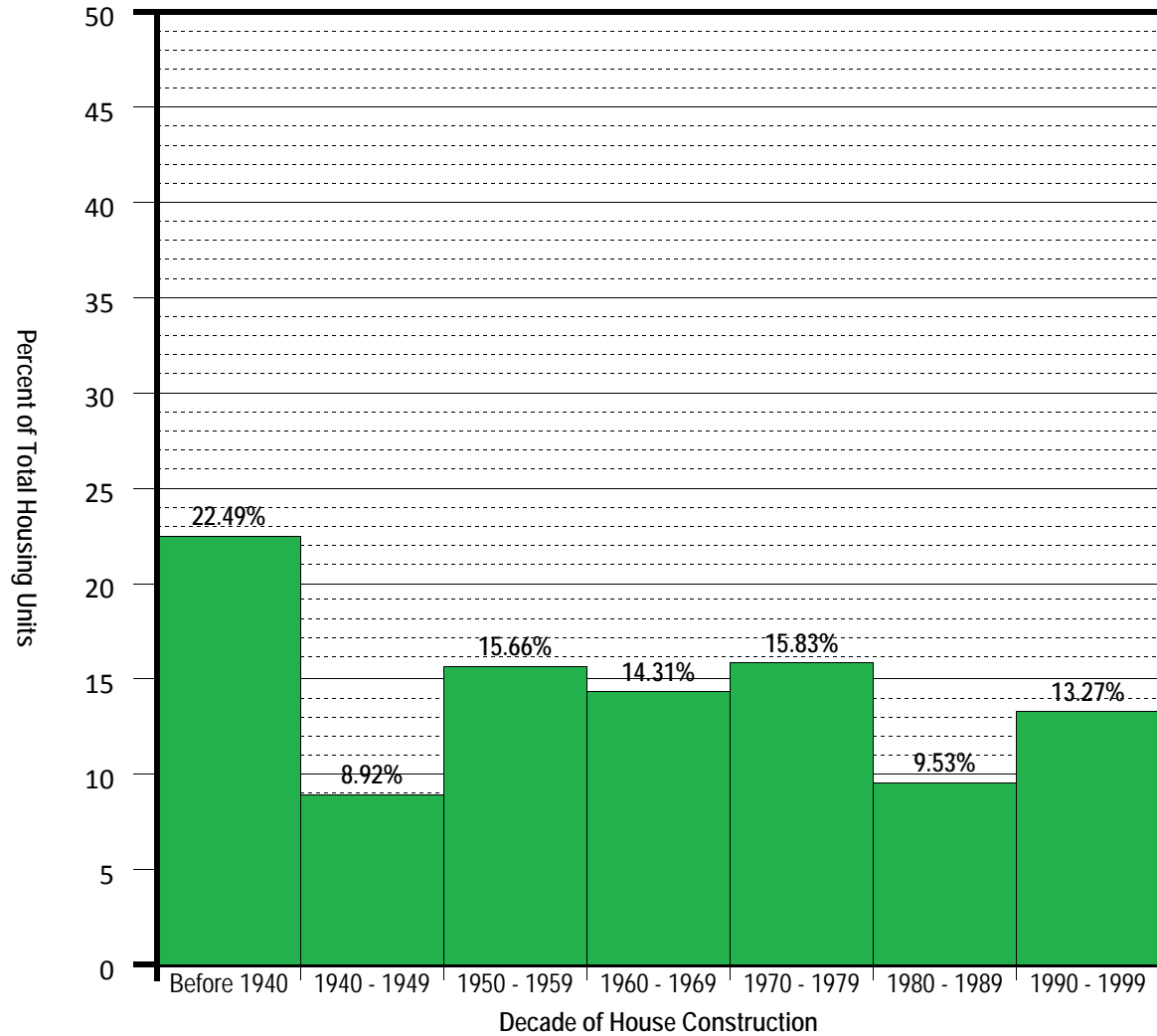
North Dakota

Number of Housing Units: **289,677**



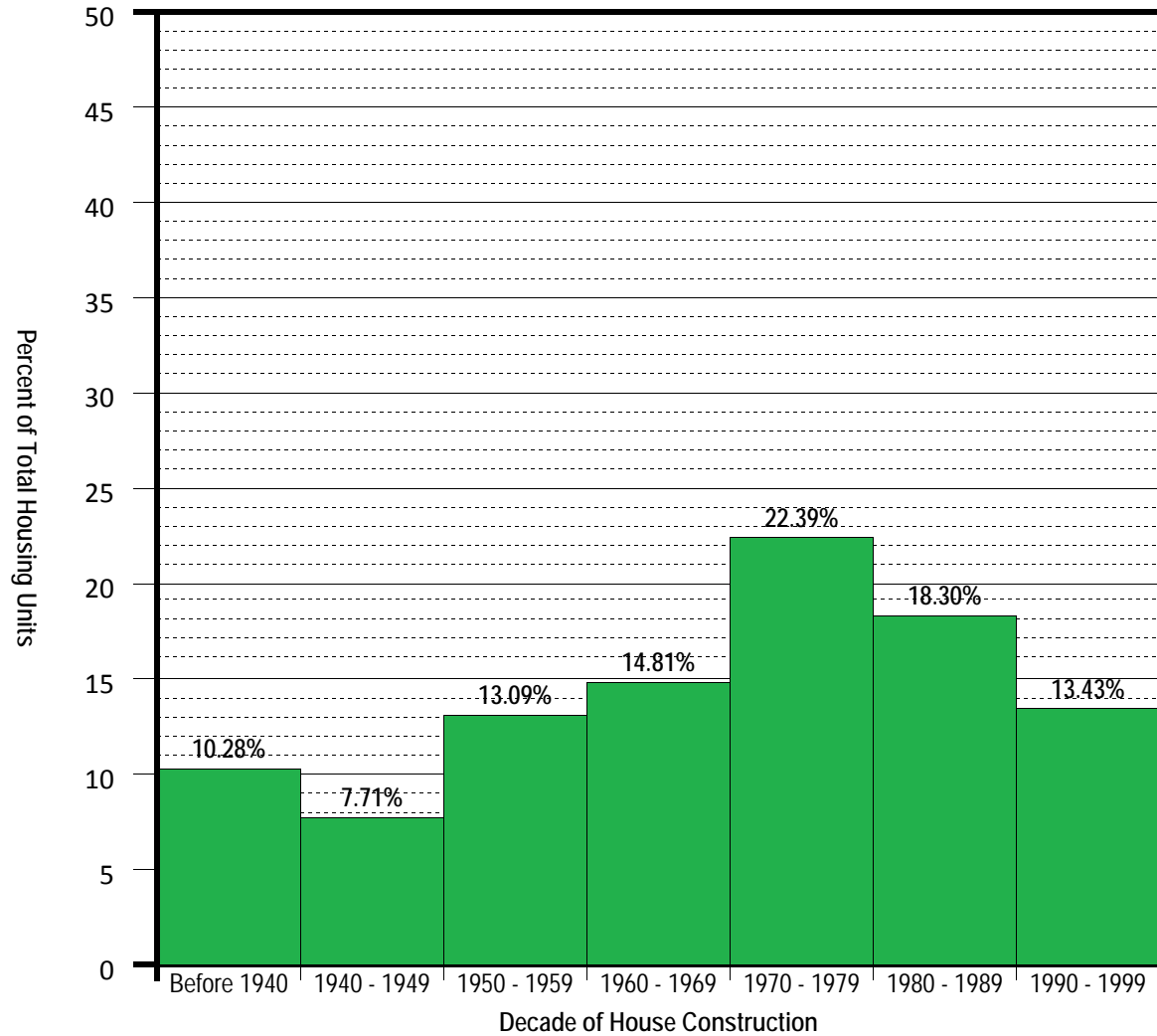
Ohio

Number of Housing Units: **4,783,051**



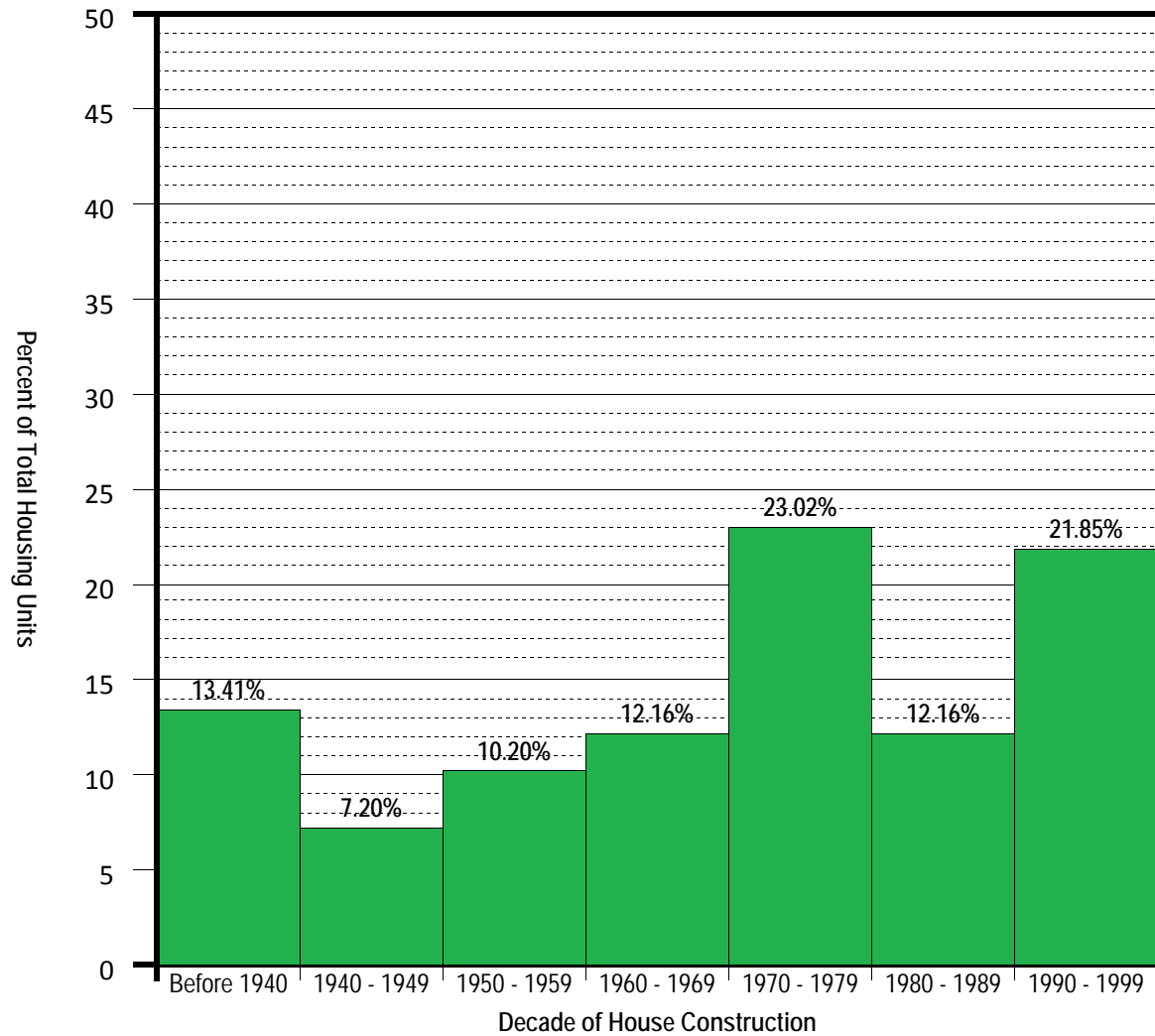
Oklahoma

Number of Housing Units: **1,514,400**



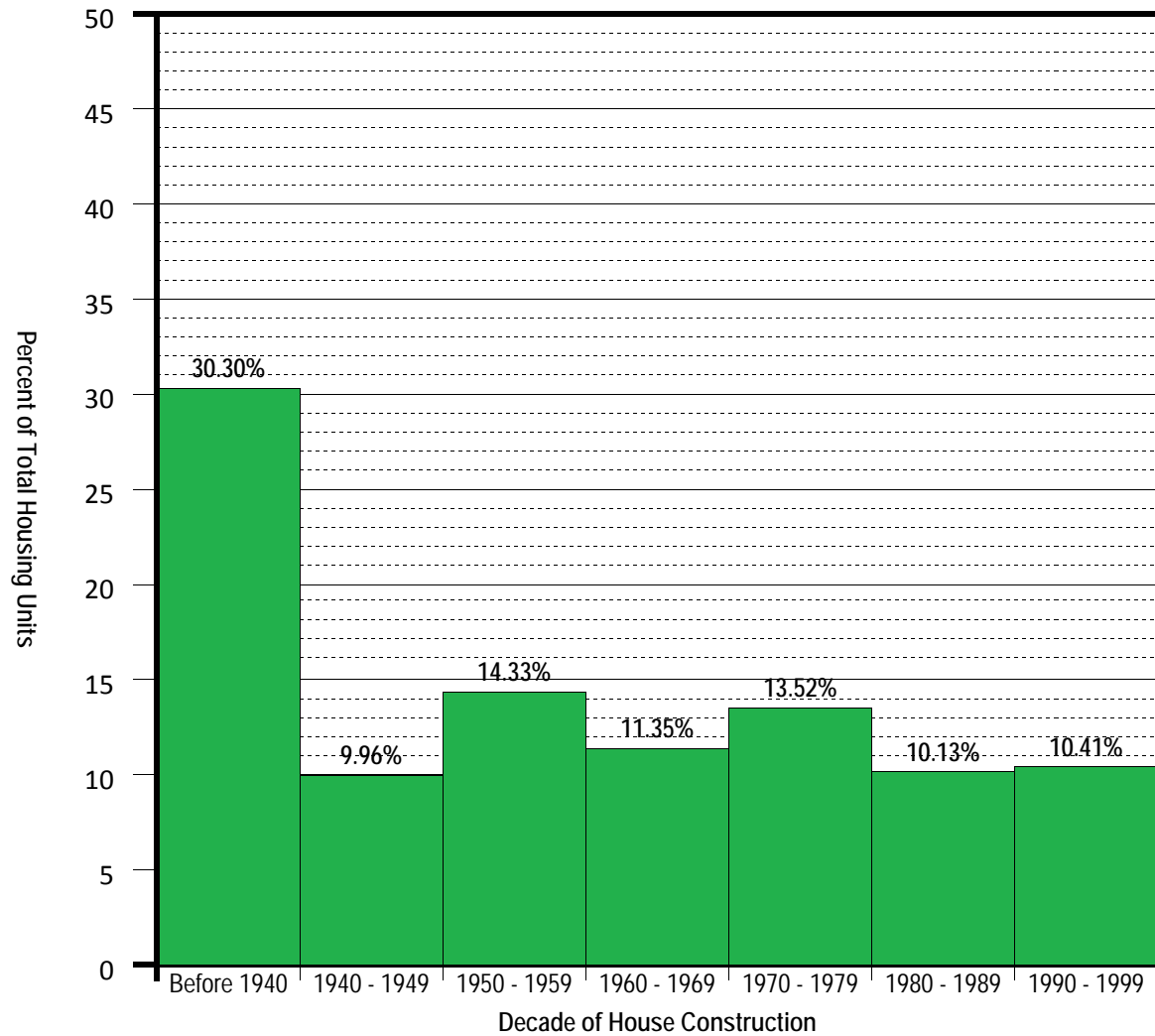
Oregon

Number of Housing Units: **1,452,709**



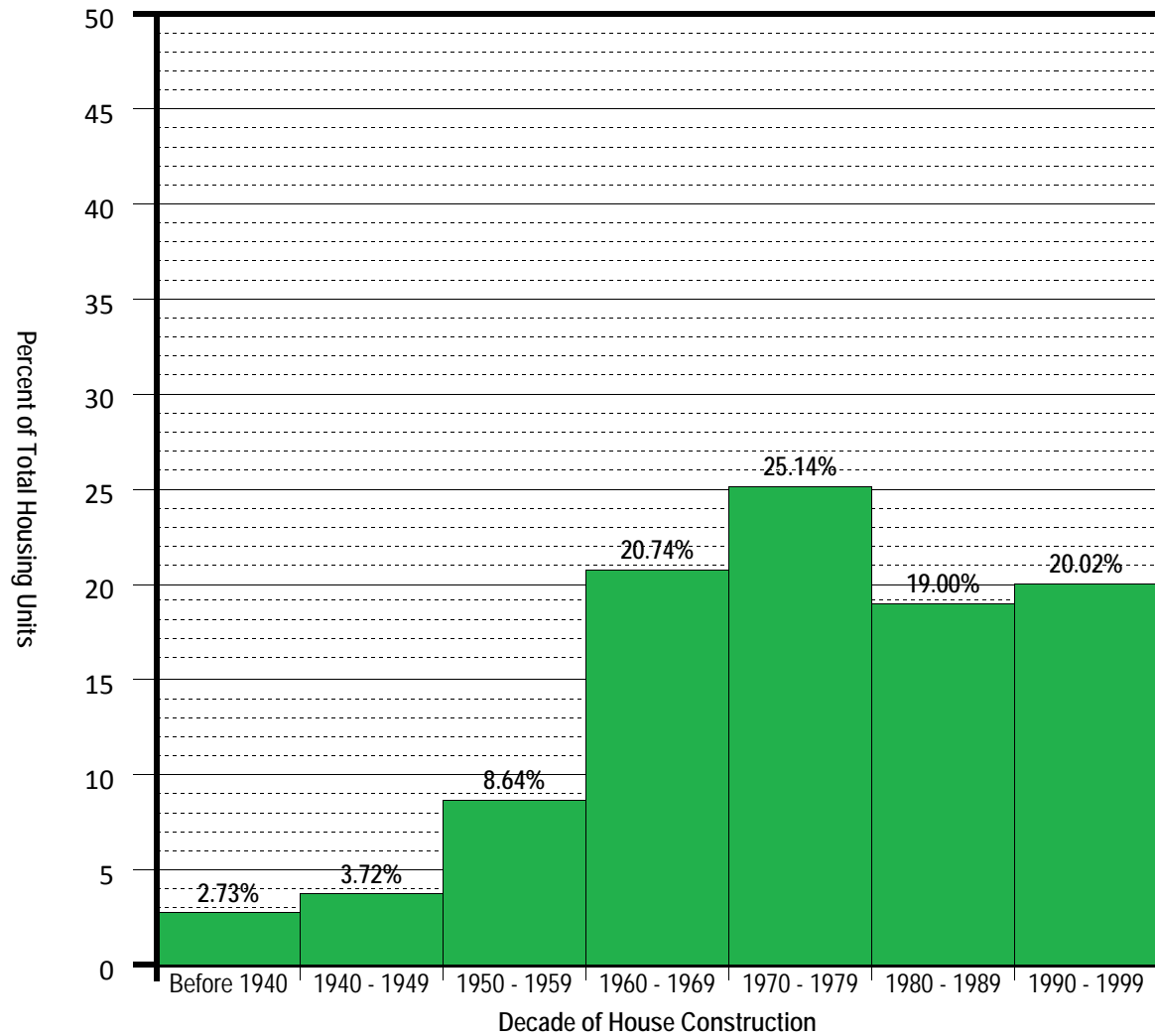
Pennsylvania

Number of Housing Units: **5,249,750**



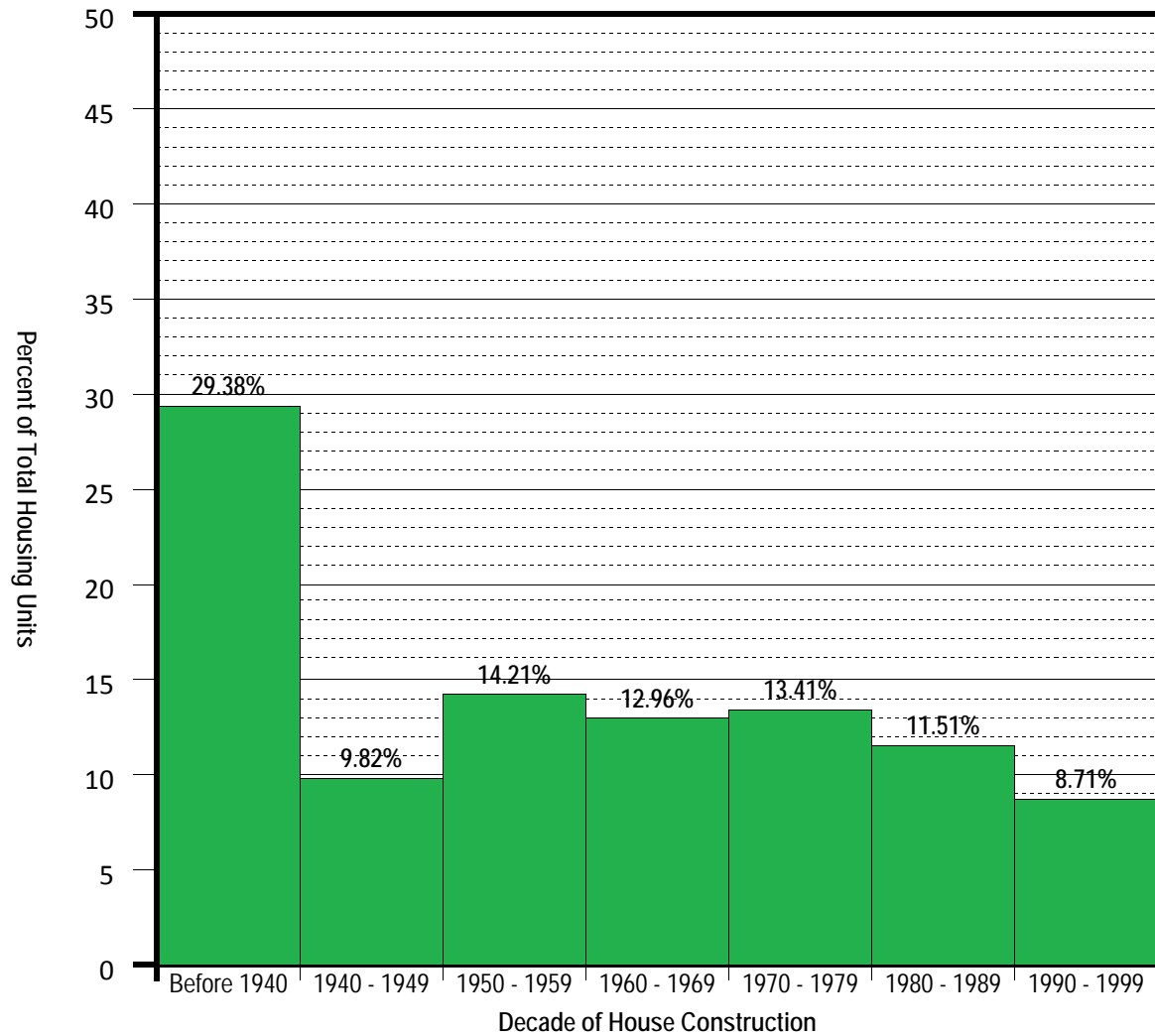
Puerto Rico

Number of Housing Units: **1,418,476**



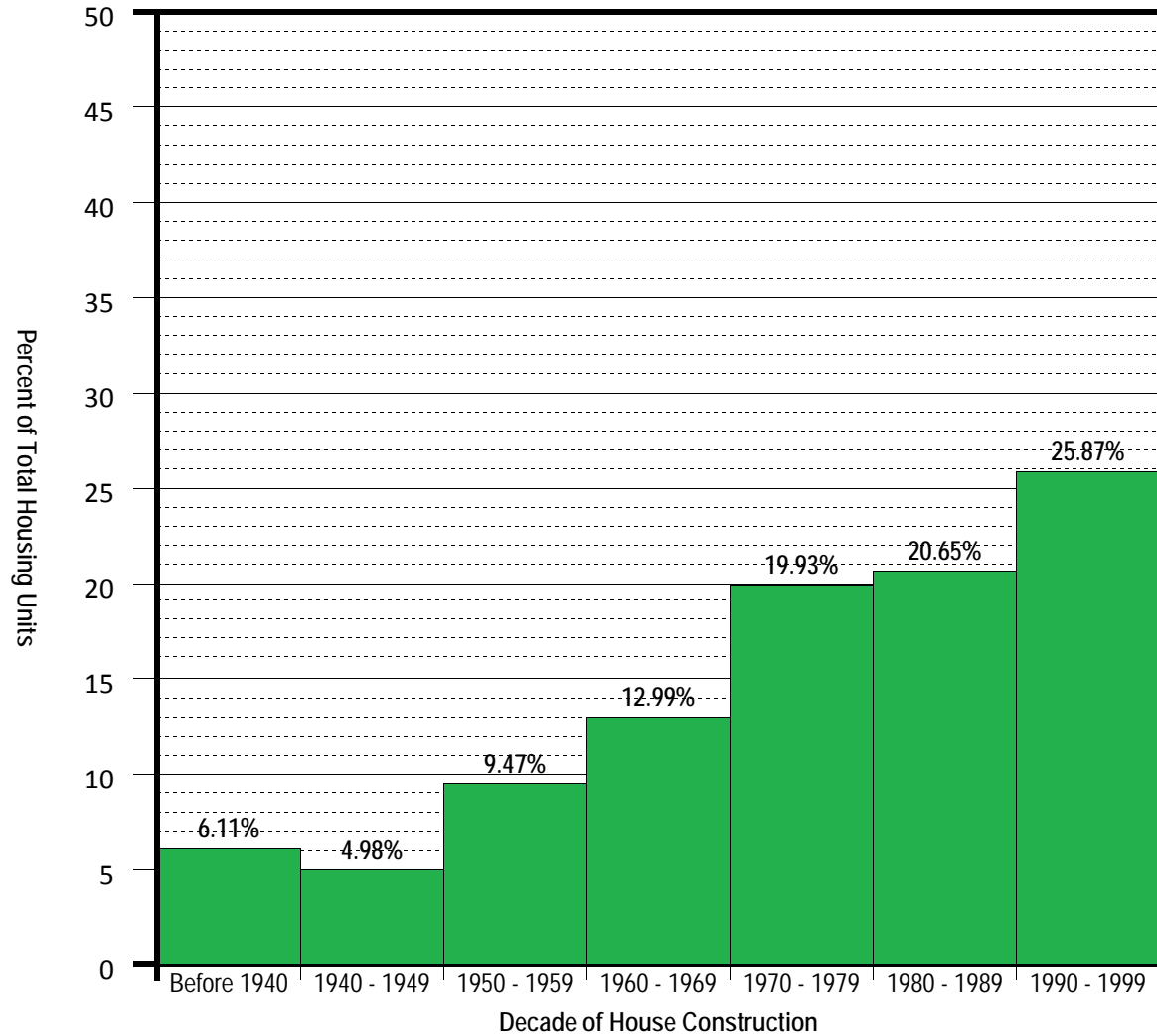
Rhode Island

Number of Housing Units: **439,837**



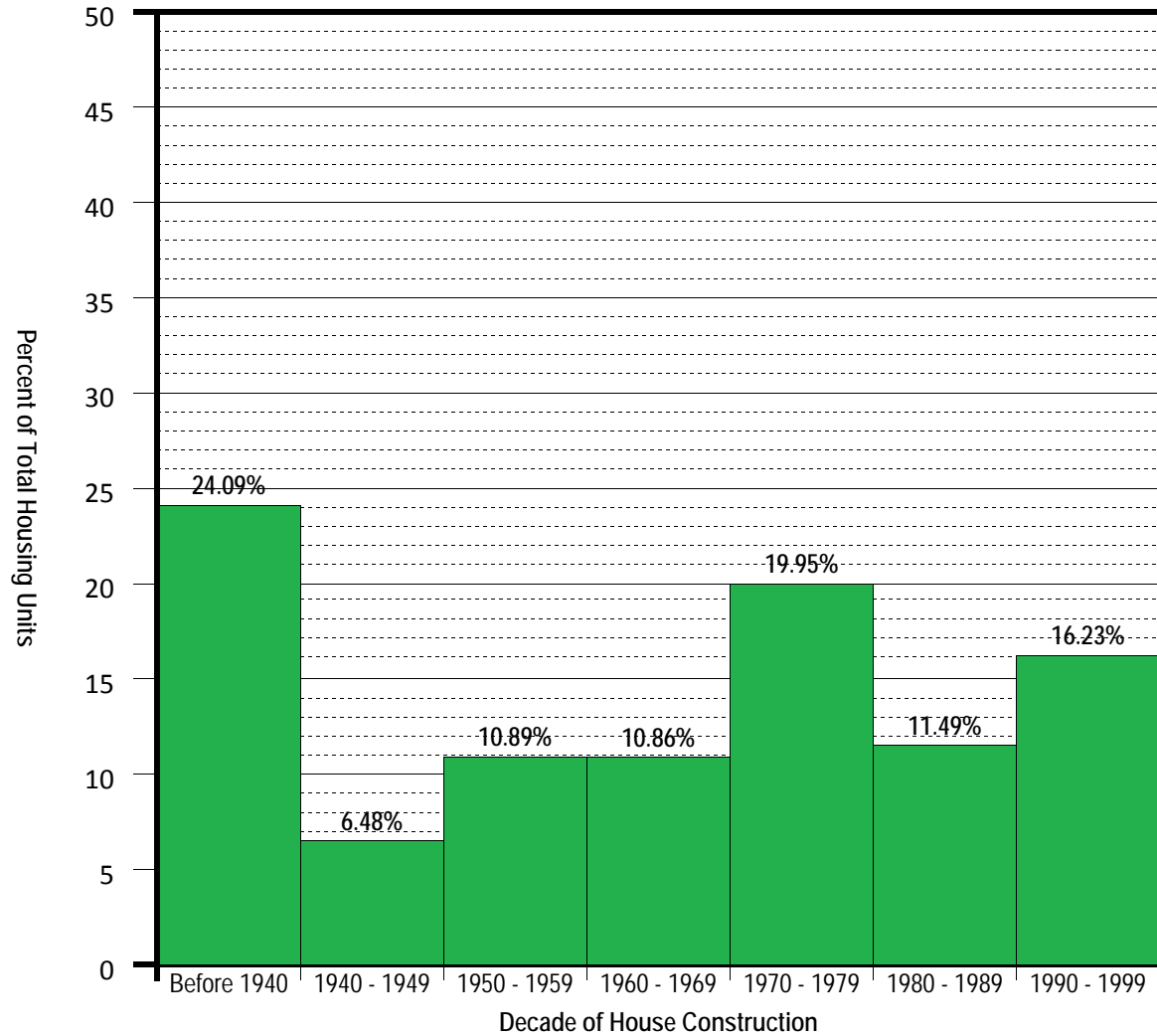
South Carolina

Number of Housing Units: **1,753,670**



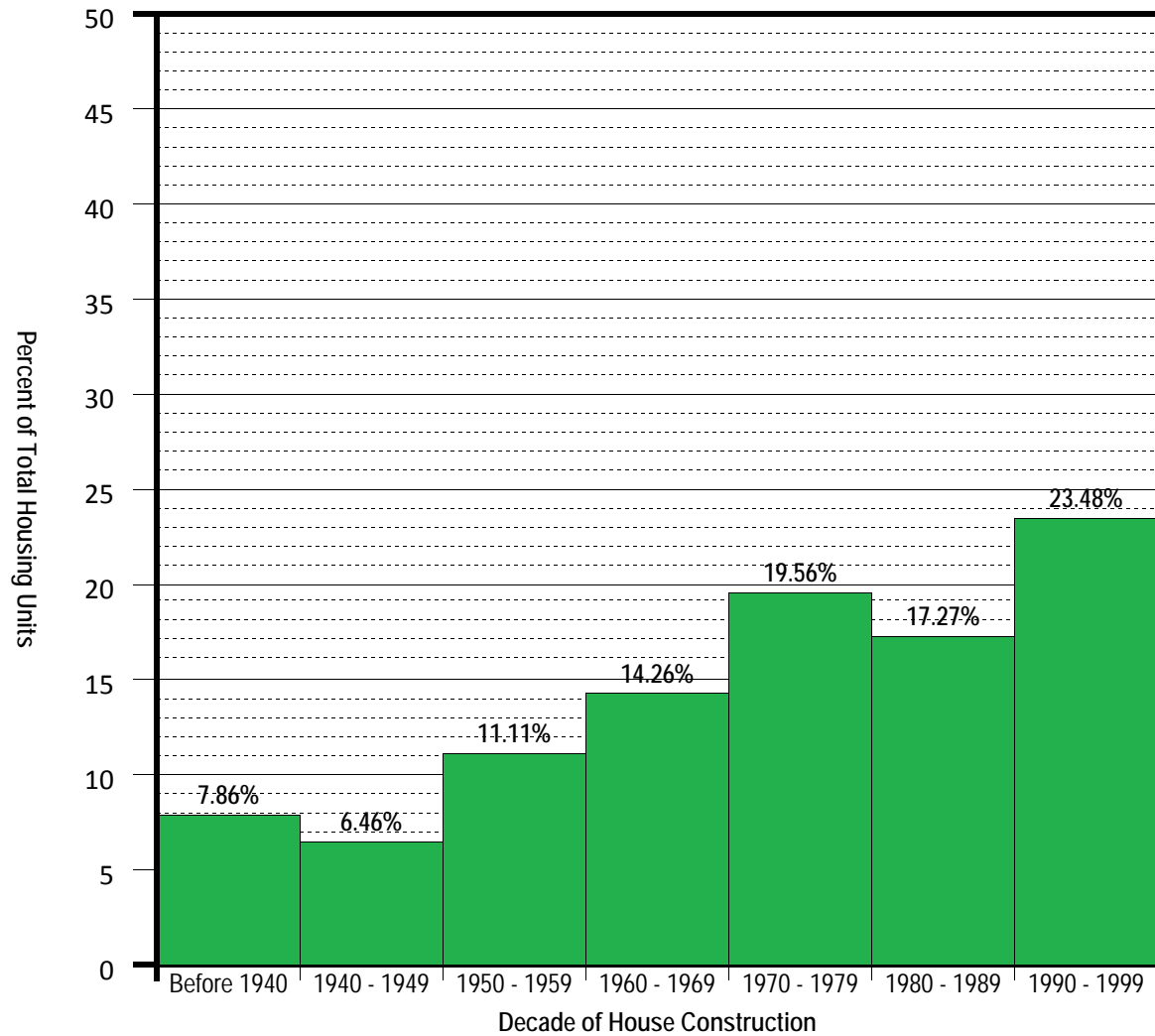
South Dakota

Number of Housing Units: **323,208**



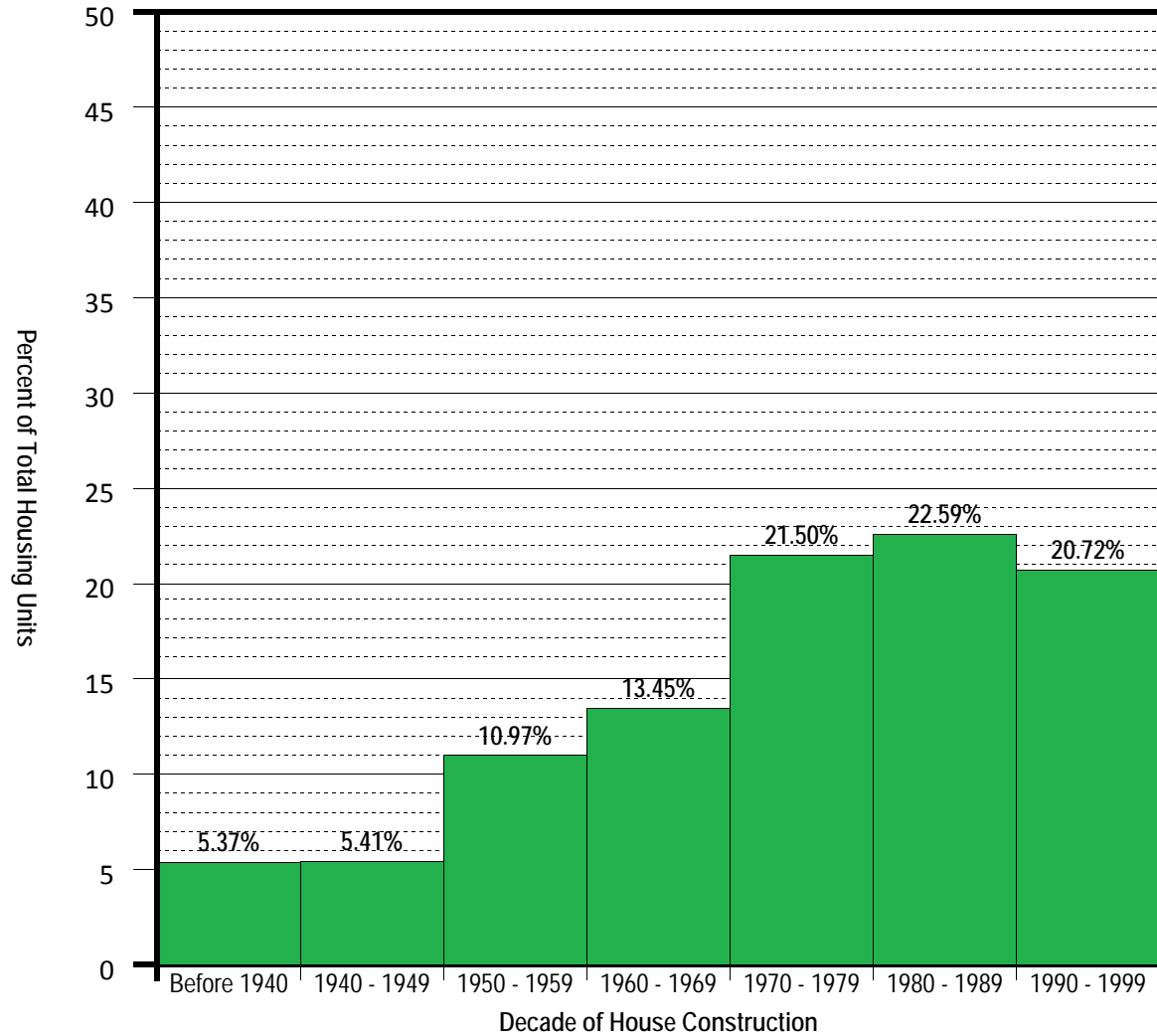
Tennessee

Number of Housing Units: **2,439,443**



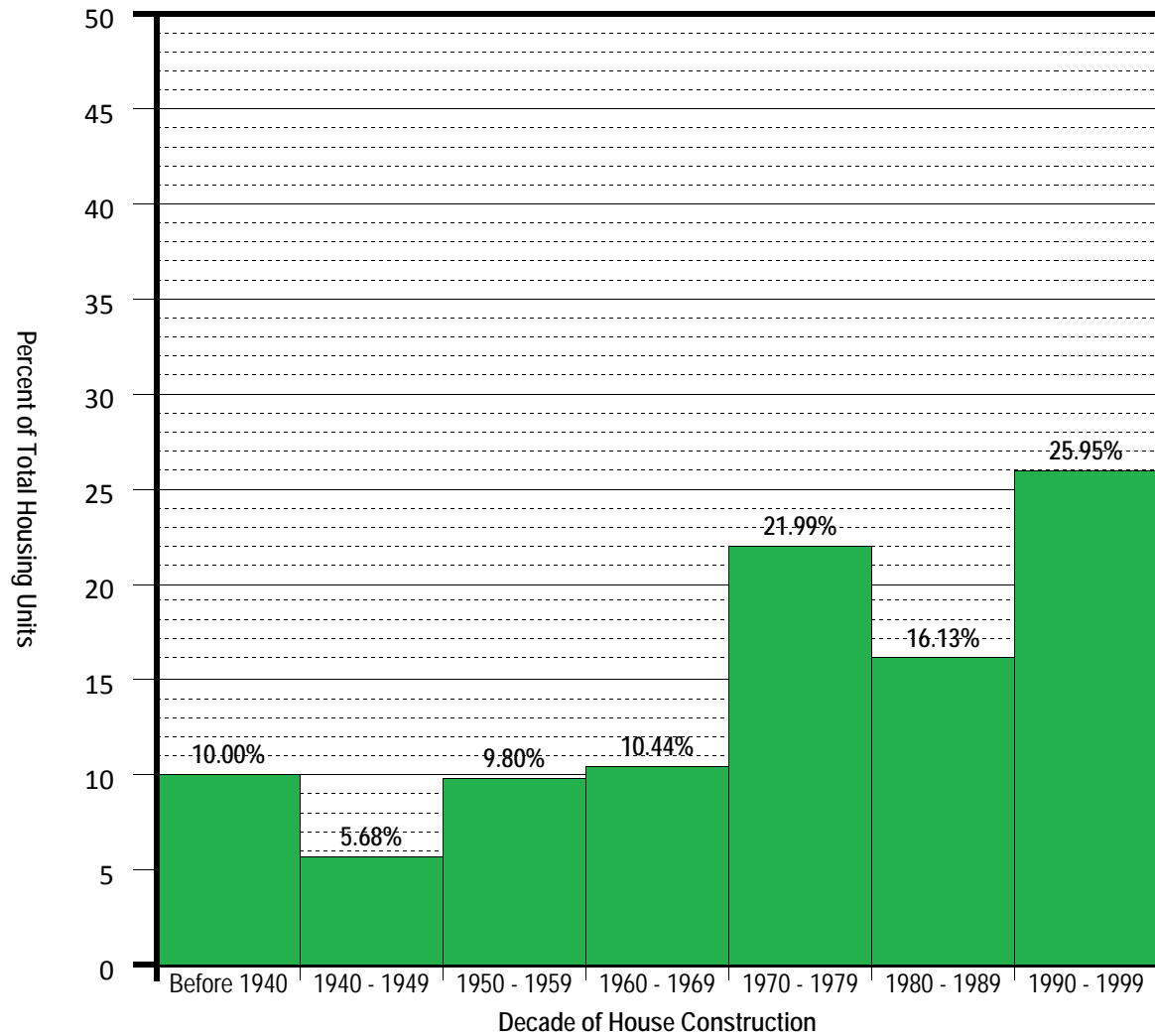
Texas

Number of Housing Units: **8,157,575**



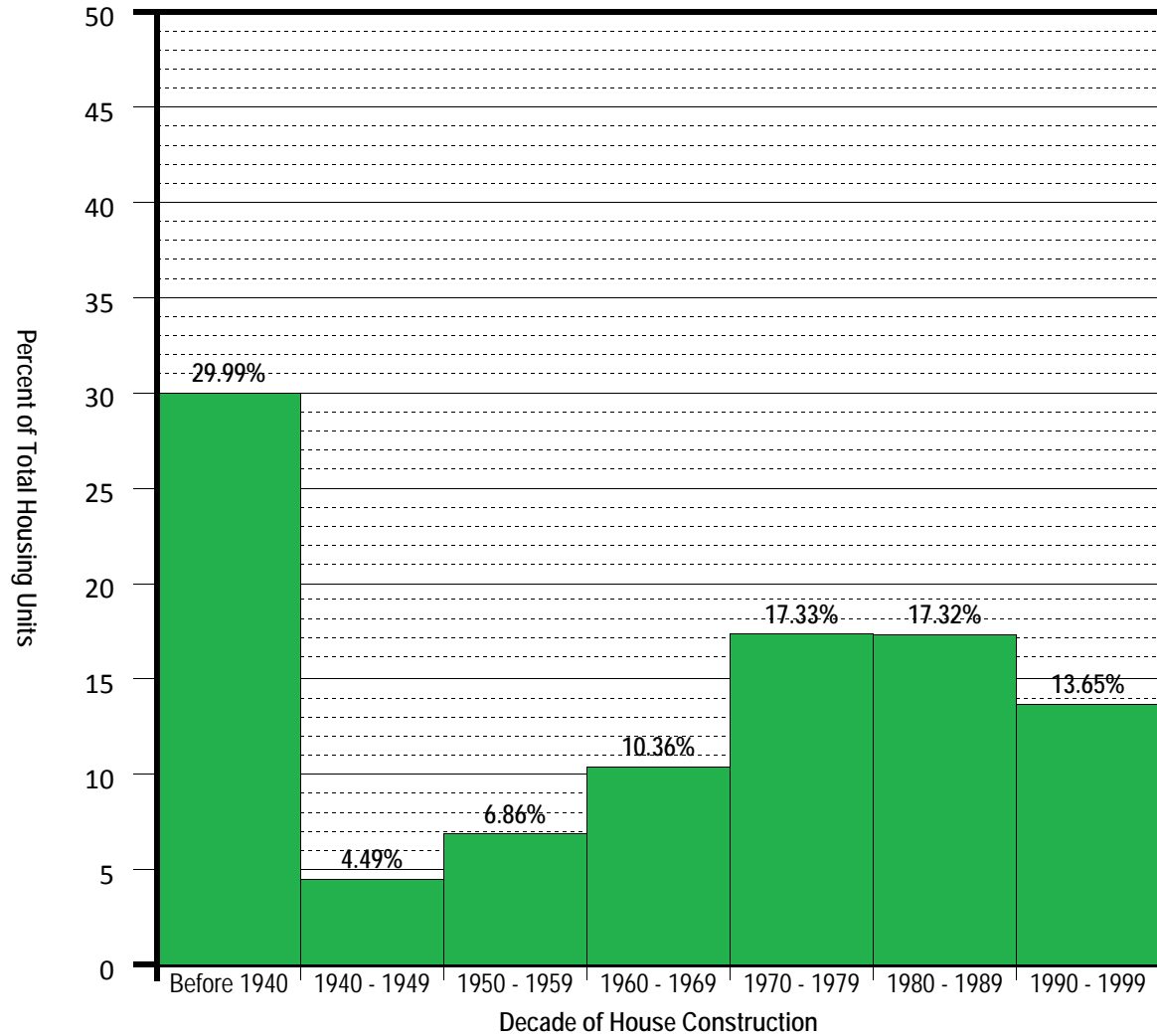
Utah

Number of Housing Units: **768,594**



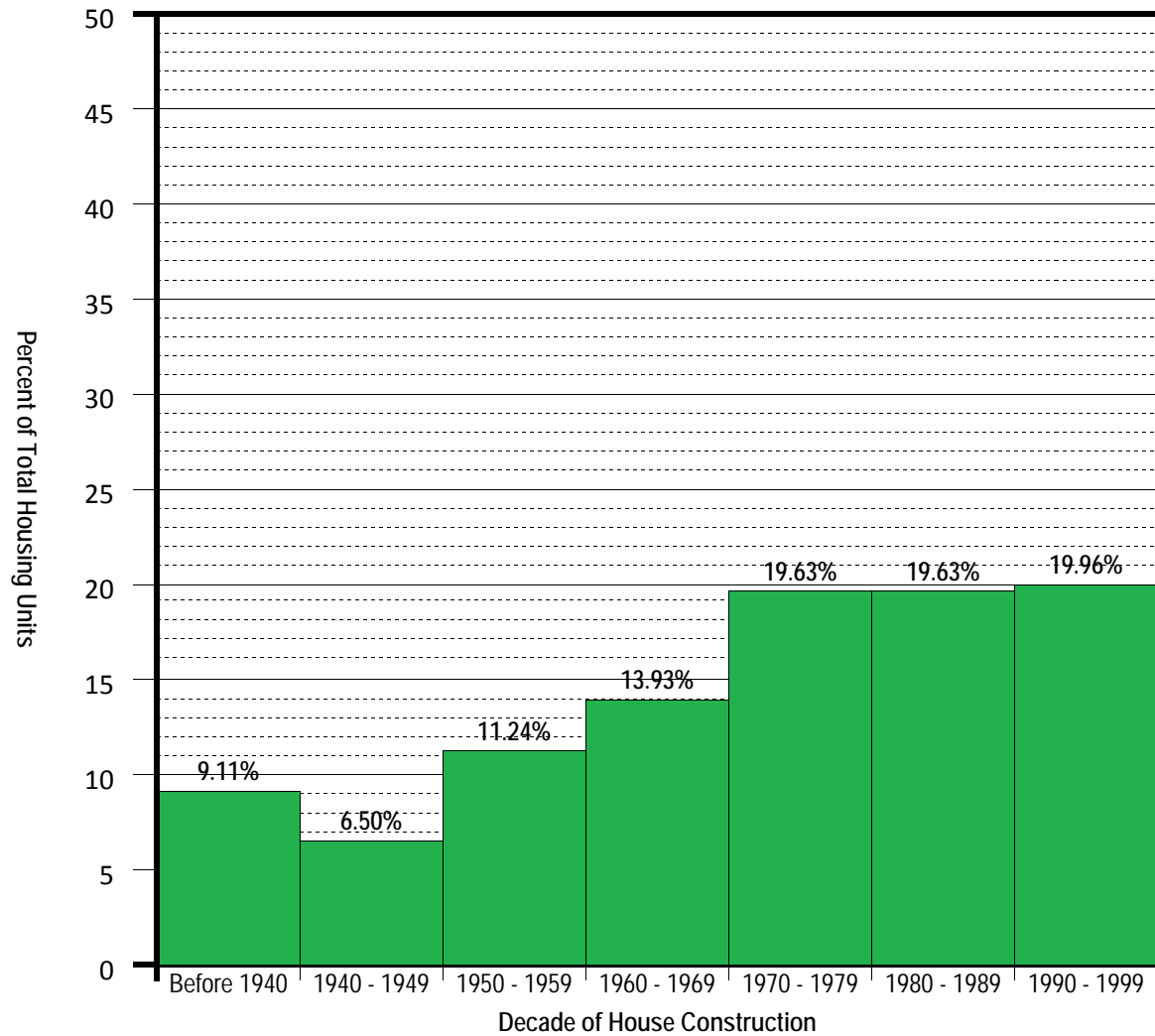
Vermont

Number of Housing Units: **294,382**



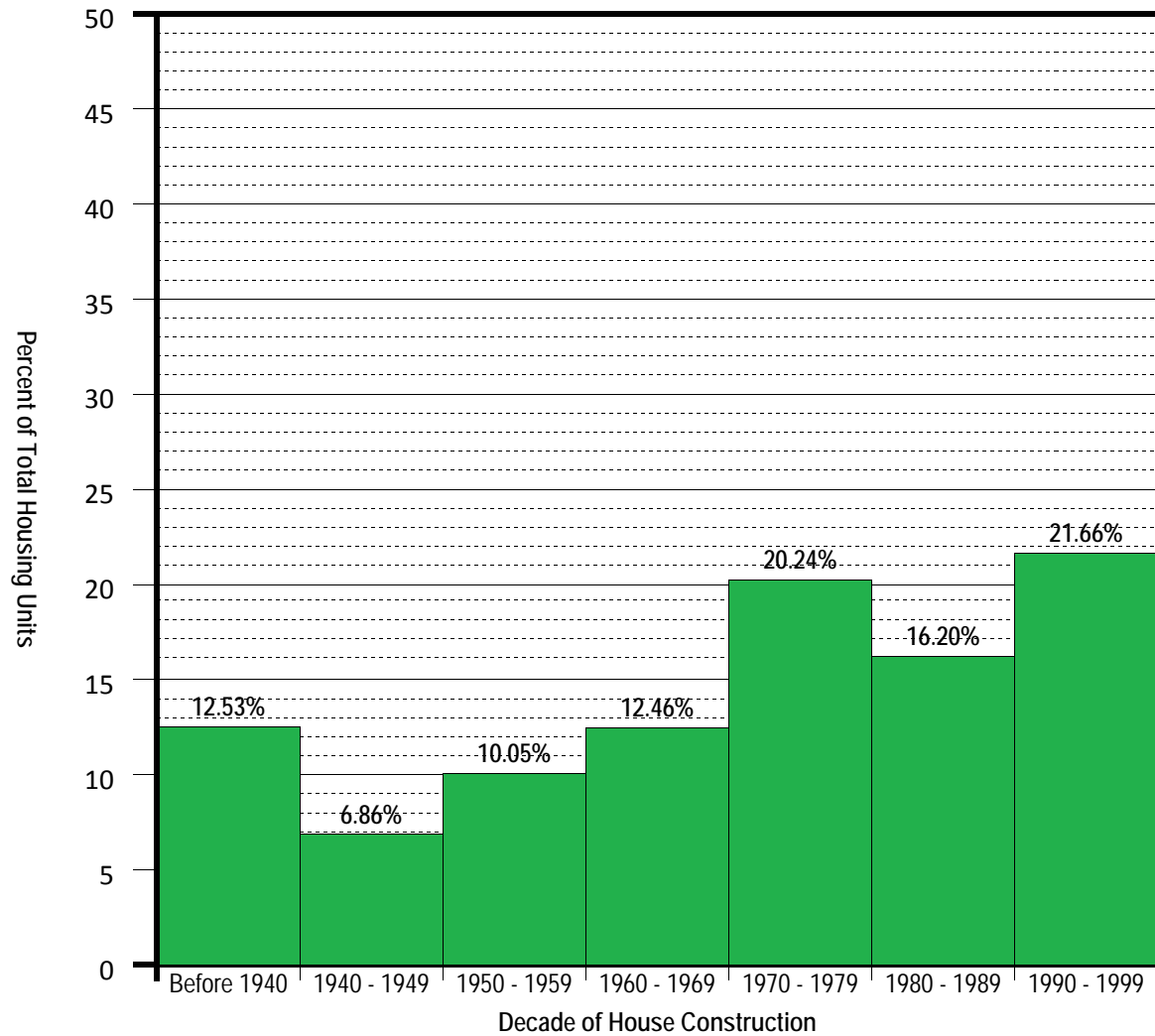
Virginia

Number of Housing Units: **2,904,192**



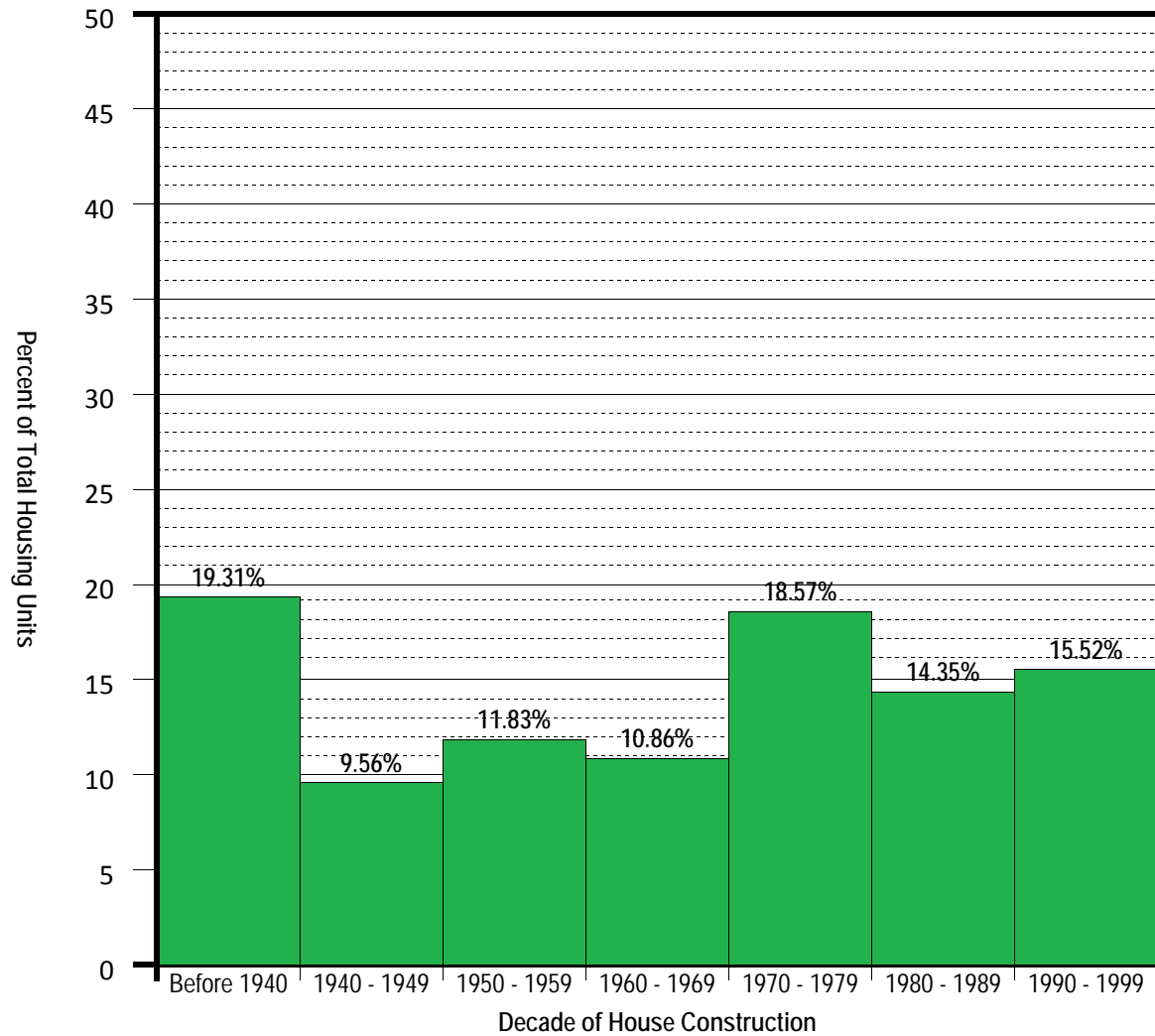
Washington

Number of Housing Units: **2,451,075**



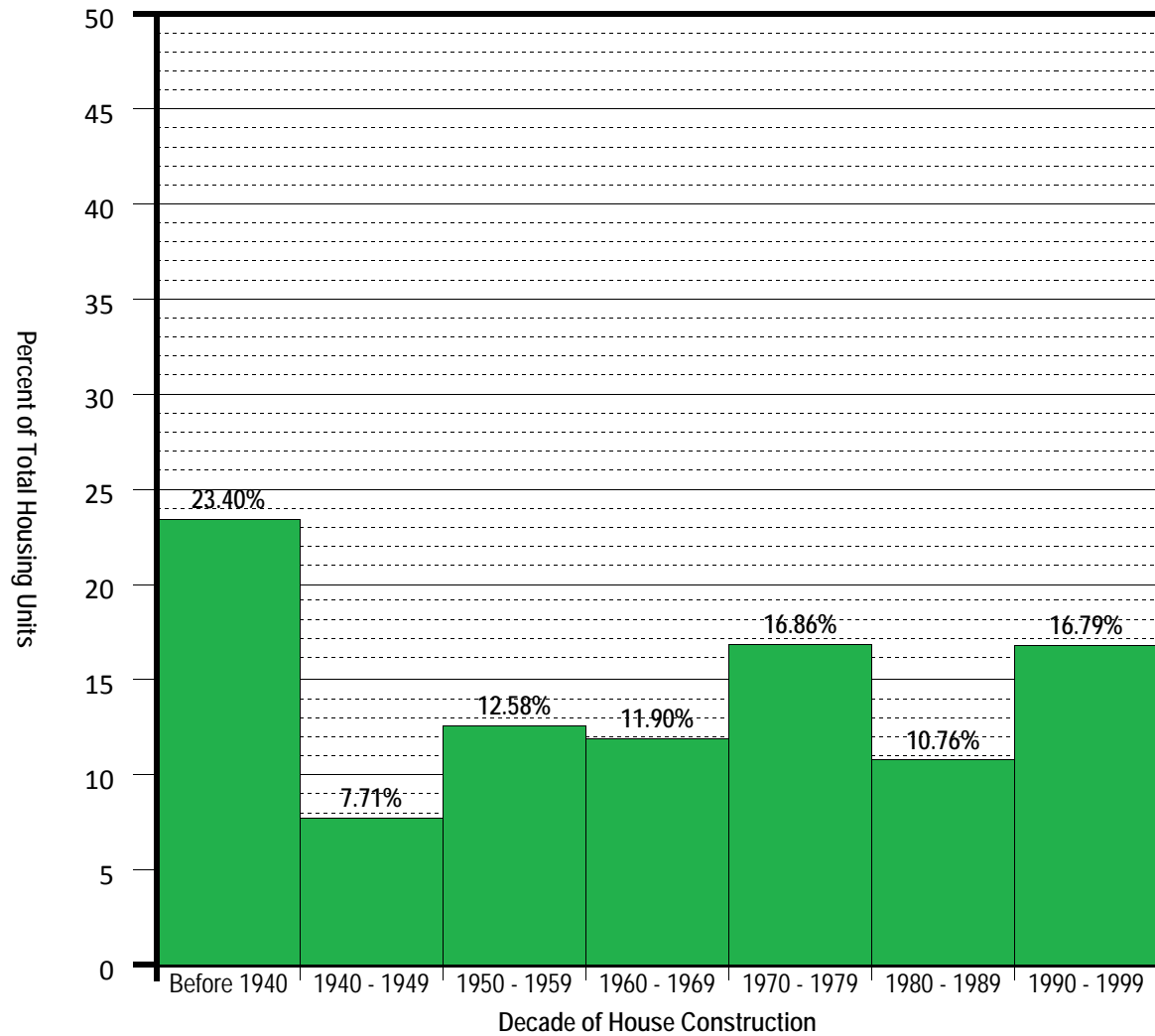
West Virginia

Number of Housing Units: **844,623**



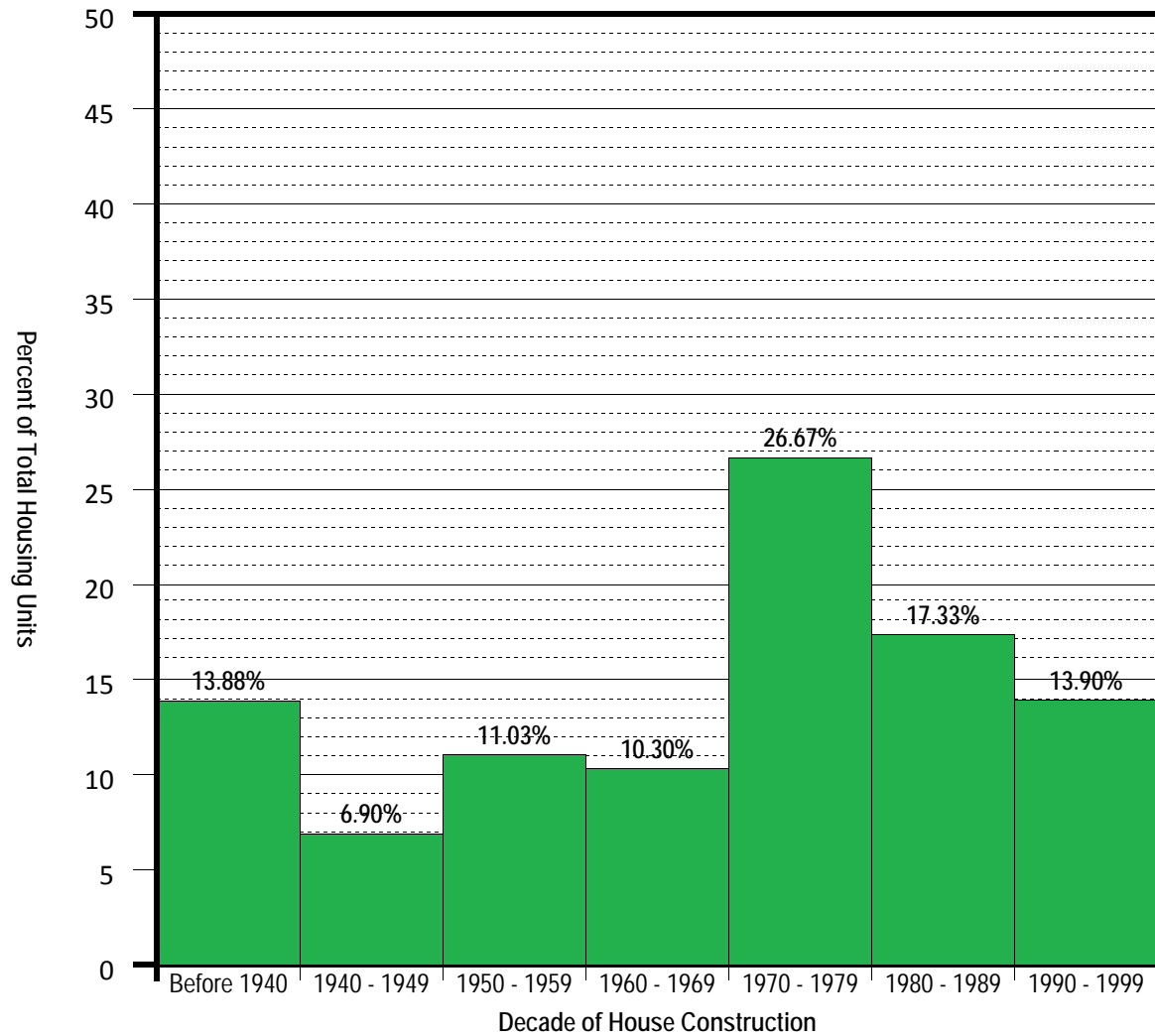
Wisconsin

Number of Housing Units: **2,321,144**



Wyoming

Number of Housing Units: **223,854**



Appendix 6.B: Energy Features by Era for Ten U.S. Locations

Table 1: Matrix of housing specifications for houses in Washington from Criterium Engineers (1 of 10)

SECTOR	STATE		WASHIINGTON	WASHIINGTON	WASHIINGTON
	TIME PERIOD		Before 1970	1971- 1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		2,000	500	500
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(SF), Apt(A), Condo(C), Other(O)	SF	SF	SF
		Plan Layouts Number of Rooms, Bedrooms, Baths	6 rooms, 3br, 2 bath	6 rooms, 3br, 2.5bath	6 rooms, 3br, 2.5 bath
		Building Type SF Residence, Mid-Rise, High-Rise	SF	SF	SF
		Average Square Footage < 2000 / 2000-5000 / 5000 +	1800	2200	3000
		State Program Strength (Excellent, Good, Fair, Poor)	Fair	Fair	Fair
		Maintenance Rating (Excellent, Good, Fair, Poor)	Fair	Fair	Good
	BUILDING SYSTEMS	Crawlspace / Basement / Slab on grade Choose One	Basement	Crawlspace	Crawlspace
		Above Grade Exterior Walls Wood/Metal? Exterior Cladding? Interior Finish?	Wood Framed, Wood siding, Wallboard	Wood Framed, Wood siding, Wallboard	Wood Framed, Wood siding, Wallboard
		Insulation Insulated, Y/N? Ceiling & walls R-value?	Insulated, Ceiling R0,Walls R9	Insulated, Ceiling R18,Walls R9	Insulated, Ceiling R28,Walls R18
		Roof or Flat? Roofing Material? Sloped	Sloped, Composition	Sloped, Composition	Sloped, Composition
		Exterior Doors Material? Insulated?	Wood, Un-insulated	Wood, Insulated	Wood, Insulated
		Windows Single/double glazed? Material? U Factor/SHGC?	Single glazed, Wood	Single, Metal	Double, Vinyl
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	No Housewrap, Yes VB, Yes chimney, Poor Sealant	Building Paper, Yes VB, Yes chimney, Poor Sealant	Housewrap, Yes VB, Metal Chimney, Fair Sealant
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	Bath fan when no window,	Bath fan when no window,	Bath fans, and whole house fans
		Heating Water/Air/Radiant? Fuel? Efficiency?	Forced hot air, oil, below 80%	Forced hot air, gas, 80%	Forced hot air, gas, 80%
		Cooling Present? System or Appliance? SEER?	Not present	Not present	Not present
		Ductwork Material? % Leakage? Insulated?	Metal, insulated	Metal, insulated	Flex, insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	Storage, 50 Gal, Electric, NA	Storage, 50 Gal, Electric, NA	Storage, 50 Gal, Gas
		Appliances Energy Star? Electric/Gas?	Electric, No Energy Star	Electric, No Energy Star	Electric, Yes Energy Star
		Lighting Incandescent/Fluorescent? Natural? Automation?	Incandescent, Limited natural, no automation	Incandescent, Limited natural, no automation	Incandescent, Limited natural, no automation

Table 2: Matrix of housing specifications for houses in Texas from Criterium Engineers (2 of 10)

SECTOR	STATE		TEXAS	TEXAS	TEXAS
	TIME PERIOD		Before 1970	1971- 1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		1,000	2,000	3,000
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(SF), Apt(A), Condo(C), Other(O)	SF	SF	SF
		Plan Layouts Number of Rooms, Bedrooms, Baths	6 Rooms, 3 Bedrooms, 2 Baths	7 Rooms, 4 Bedrooms, 2.5 Baths	7 Rooms, 4 Bedrooms, 3.5 Baths
		Building Type SF Residence, Mid-Rise, High-Rise	SF	SF	SF
		Average Square Footage < 2000 / 2000-5000 / 5000 +	< 2000	2000-5000	2000-5000
		State Program Strength (Excellent, Good, Fair, Poor)	FAIR	FAIR	GOOD
		Maintenance Rating (Excellent, Good, Fair, Poor)	FAIR	GOOD	GOOD
		Crawlspace / Basement / Slab on grade Choose One	Slab on grade	Slab on grade	Slab on grade
	BUILDING SYSTEMS	Above Grade Exterior Walls Exterior Cladding? Interior Finish? Wood/Metal?	Wood Framed, Wood Siding, Painted Drywall	Wood Framed, Brick Veneer Siding, Painted Drywall	Wood Framed, Brick Veneer Siding, Painted Drywall
		Insulation Insulated, Y/N? Ceiling & walls R-value?	Insulated, Ceiling R19, Walls R11	Insulated, Ceiling R19, Walls R11	Insulated, Ceiling R30, Walls R19
		Roof or Flat? Roofing Material? Sloped	Sloped, Shingle	Sloped, Shingle	Sloped, Shingle
		Exterior Doors Material? Insulated?	Wood, uninsulated	Wood, uninsulated	Wood/Metal, Insulated
		Windows Single/double glazed? Material? U Factor/SHGC?	Single Glazed, Aluminum Framed	Single Glazed, Aluminum Framed	Double Glazed, Aluminum Framed
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	Felt Paper, No VB, Chimney, Poor Sealant	Felt Paper, No VB, Chimney, Poor Sealant	Housewrap, Yes VB, Chimney, Good Sealant
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	No House Fans, No Bath Fans, Kitchen Exhaust	No House Fans, Bath Fans vented to attic, Kitchen Exhaust	No House Fans, Bath Fans vented to Exterior, Kitchen Exhaust
		Heating Water/Air/Radiant? Fuel? Efficiency?	Forced Air, Gas Fired	Forced Air, Gas Fired	Forced Air, Gas Fired
		Cooling Present? System or Appliance? SEER?	Split System	Split System	Split System, CM(see below)
		Ductwork Material? % Leakage? Insulated?	Rigid, insulated	Flexible, insulated	Flexible, insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	Storage, 30-40 Gallon, Gas Fired, Vented	Storage, 30-40 Gallon, Gas Fired, Vented	Storage, 40-50 Gallon, Gas Fired, Vented
		Appliances Energy Star? Electric/Gas?	Gas, No Energy Star	Gas, No Energy Star	Gas, Energy Star
		Lighting Incandescent/Fluorescent? Natural? Automation?	Incandescent, Limited natural, no Automation	Incandescent, Limited natural, no Automation	Incandescent, Moderate natural, no Automation

Table 3: Matrix of housing specifications for houses in Colorado from Criterium Engineers (3 of 10)

SECTOR	STATE		COLORADO	COLORADO	COLORADO
	TIME PERIOD		Before 1970	1971- 1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		1,000	1,000	1,000
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(SF), Apt(A), Condo(C), Other(O)	SF	SF	SF
		Plan Layouts Number of Rooms, Bedrooms, Baths	6 rooms, 3br, 1 bath	6 rooms, 3br, 2 bath	7 rooms, 4br, 2 bath
		Building Type SF Residence, Mid-Rise, High-Rise	SF residence	SF residence	SF residence
		Average Square Footage < 2000 / 2000-5000 / 5000 +	<2000	2000	2700
		State Program Strength (Excellent, Good, Fair, Poor)	Fair	Fair	Good
		Maintenance Rating (Excellent, Good, Fair, Poor)	Fair	Fair	Good
		Crawlspace / Basement / Slab on grade Choose One	Basement	Basement with or without partial crawlspace	Basement
	BUILDING SYSTEMS	Above Grade Exterior Walls Exterior Cladding? Interior Finish? Wood/Metal?	Wood framed, brick veneer, wood siding, stucco, hardboard	Wood framed, brick, hardboard, stucco	Wood framed, hardboard, stucco
		Insulation Insulated, Y/N? Ceiling & walls R-value?	Yes, R19, R12 walls, older homes before 1945 non-insulated or R3 attic	Yes, R30, R13 walls, most upgraded with additional insulation to 8-10 inches of blown fiberglass	Yes, R36-42, R17-19 walls
		Roof or Flat? Roofing Material? Sloped	Pitched, asphalt/fiberglass shingles	Pitched, shingle	Pitched, shingle
		Exterior Doors Material? Insulated?	Solid core wood, uninsulated. Some w/aluminum sliding doors with storm sliders	Fiberglass or wood, insulated. Some w/wood sliders, double pane	Fiberglass, insulated. Some with vinyl sliding doors, insulated
		Windows Single/double glazed? Material? U Factor/SHGC?	Single glazed, wood, aluminum or steel U=1.0-1.2, SHGC=0.7-0.8	Double pane, aluminum or wood U=0.049, SHGC=0.7	Double pane vinyl, u=0.31-0.49, shgc= 0.63-0.31
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	Felt paper, no vb, chimney, poor sealant	Felt paper, no vt, chimney, fair sealant	With or without housewrap (code change), some with no vapor barrier, no chimney
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	Bath fans and kitchen range hood exhaust, no air exchange	Bath fans, reirc. Kitchen range hood	Bath fans, reirc. Kitchen range hood or downdraft exhaust at range
		Heating Water/Air/Radiant? Fuel? Efficiency?	Forced air, natural gas, .80	Forced air, natural gas, 0.8-0.85	Forced air, natural gas, 0.85-0.90
		Cooling Present? System or Appliance? SEER?	None	None	None or split system, CM(see below)
		Ductwork Material? % Leakage? Insulated?	Rigid, 20%, non-insulated	Rigid, 20%, non-insulated	Rigid, 20%-<10%, non-insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	Storage, 40 gallon, vented to chimney, eff=.80	Storage, 40-50 gallon, vented to chimney or metal flue,, eff=.80	Storage, 50 gallon, vented to metal flue, 4" diameter since 2003
		Appliances Energy Star? Electric/Gas?	Electric, no energy star	Electric, no energy star	Electro, some with energy star since 2003
		Lighting Incandescent/Fluorescent? Natural? Automation?	Incandescent	Incandescent	Incandescent/natural (skylights)+fluorescent since about 2007

Table 4: Matrix of housing specifications for houses in North Carolina from Criterium Engineers (4 of 10)

SECTOR	STATE		NO CAROLINA	NO CAROLINA	NO CAROLINA
	TIME PERIOD		Before 1970	1971- 1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		2,000	2,000	2,000
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(SF), Apt(A), Condo(C), Other(O)	SF	SF	SF
		Plan Layouts Number of Rooms, Bedrooms, Baths	6 Rooms, 3 Bedrooms, 1.5 Bath	7 Rooms, 3 Bedrooms, 2 Bath	7 Rooms, 4 Bedrooms, 2.5 Bath
		Building Type SF Residence, Mid-Rise, High-Rise	SF	SF	SF
		Average Square Footage < 2000 / 2000-5000 / 5000 +	1800	2000	2300
		State Program Strength (Excellent, Good, Fair, Poor)	Fair	Fair	Good
		Maintenance Rating (Excellent, Good, Fair, Poor)	Fair	Fair	Good
		Crawlspace / Basement / Slab on grade Choose One	Crawl space	Crawl space/Slab	Crawl space/Slab/basement
	BUILDING SYSTEMS	Above Grade Exterior Walls Exterior Cladding? Interior Finish?	Wood/Brick/Wallboard	Wood/Brick/Wallboard	Wood/Vinyl or fiber- cement/Wallboard
		Insulation Insulated, Y/N? Ceiling & walls R-value?	Yes, Ceiling R13, Walls R11	Yes, Ceiling R19, Walls R13	Yes, Ceiling R30, Walls R16
		Roof or Flat? Roofing Material?	Sloped, Asphalt shingles	Sloped, Asphalt shingles	Sloped, Asphalt Shingles
		Exterior Doors Material? Insulated?	Wood, No	Steel, Yes	Steel, Yes
		Windows Single/double glazed? Material? U Factor/SHGC?	Single, Wood	Double, Wood	Double, Vinyl
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	Felt paper, No VB, Yes Chimney, Poor Sealant	Yes Housewrap, Yes Polyethylene, Yes Chimney, Good Sealant	Yes Housewrap, Yes Poly, No Chimney, Good Sealant
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	None	Bath Fans vented into the attic and Kitchen Exhaust	Bath Fans vented to exterior, Kitchen Exhaust
		Heating Water/Air/Radiant? Fuel? Efficiency?	Air, Oil and Gas, 60%	Air, Gas and HP	Air, HP
		Cooling Present? System or Appliance? SEER?	Central, CM(see below)	Central, CM(see below)	Central, CH(see below)
		Ductwork Material? % Leakage? Insulated?	Metal, 40% Leakage, Unisulated	Ductboard, 20%Leakage, Insulated	Flex, 10% Leakage, Insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	Storage, 40 gal., Yes, 50%	Storage, 40 gal, yes, 70%	Storage, 50 gal, yes, 85%
		Appliances Energy Star?	Electric and Gas, No Energy Star	Gas and Electric, No Energy Star	Gas and Electric, Yes Energy Star
		Lighting Incandescent/Fluorescent? Natural? Automation?	Incandescent and Fluorescent	Incandescent and Fluorescent/Natural/No	Incandescent and fluorescent

Table 5: Matrix of housing specifications for houses in New York from Criterium Engineers (5 of 10)

SECTOR	STATE		NEW YORK	NEW YORK	NEW YORK
	TIME PERIOD		Before 1970	1971- 1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		100,000	40,000	20,000
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(SF), Apt(A), Condo(C), Other(O)	SF	SF	SF
		Plan Layouts Number of Rooms, Bedrooms, Baths	7 rooms, 3br, 2 bath	7 rooms, 3br, 2 bath	7 rooms, 3br, 2 bath
		Building Type SF Residence, Mid-Rise, High-Rise	SF Residence	SF Residence	SF Residence
		Average Square Footage < 2000 / 2000-5000 / 5000 +	<2000	2000-5000	2000-5000
		State Program Strength (Excellent, Good, Fair, Poor)	Fair	Fair	Good
		Maintenance Rating (Excellent, Good, Fair, Poor)	Good	Good	Good
		Crawlspace / Basement / Slab on grade Choose One	Basement	Basement	Basement
		Above Grade Exterior Walls Exterior Cladding? Interior Finish?	Wood Siding / Wood Frame / Plaster	Wood,Vinyl,Aluminum Siding / Wood Frame / Wallboard	Vinyl Siding / Wood Frame / Wallboard
	BUILDING SYSTEMS	Insulation Insulated, Y/N? Ceiling & walls R-value?	Yes, Ceiling R11, Walls R6	Yes, Ceiling R19, Walls R11	Yes, Ceiling R30, Walls R19
		Roof or Flat? Roofing Material?	Sloped, Asphalt Shingle	Sloped, Asphalt Shingle	Sloped, Asphalt Shingle
		Exterior Doors Material? Insulated?	Wood, Uninsulated	Wood, Uninsulated	Metal, Insulated
		Windows Single/double glazed? Material? U Factor/SHGC?	Single Pane, Wood	Single Pane, Wood	Double Pane, Clad
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	Felt Paper, No VB, Chimney, Good Sealant	Housewrap, No VB, Chimney, Good Sealant	Housewrap, VB, Chimney, Good Sealant
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	Bath fans vented to attic	Bath fans vented to attic	Bath fans to exterior
		Heating Water/Air/Radiant? Fuel? Efficiency?	Water, Oil, Moderate Efficiency	Water, Oil, 80% Efficiency	Water/Air, Gas, 90% Efficiency
		Cooling Present? System or Appliance? SEER?	Window Units	Central / Window Units	Central / Window Units
		Ductwork Material? % Leakage? Insulated?	Metal, 20% leakage, Uninsulated	Metal, 10% Leakage, Uninsulated	Flex, 10% Leakage, insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	Storage, Gas, 80% Efficiency	Storage, Gas, 80% Efficiency	Storage, Gas, 80% Efficiency
		Appliances Energy Star?	Electric, No Energy Star	Electric and Gas, No Energy Star	Electric and Gas, Energy Star
		Lighting Incandescent/Fluorescent? Natural? Automation?	Incandescent, Natural	Incandescent, Natural	Incandescent/Fluorescent, Natural

Table 6: Matrix of housing specifications for houses in Massachusetts from Criterium Engineers (6 of 10)

SECTOR	STATE		MASSACHUSETTS	MASSACHUSETTS	MASSACHUSETTS
	TIME PERIOD		Before 1970	1971- 1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		10,000	8,000	8,000
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(SF), Apt(A), Condo(C), Other(O)	SF	SF	SF
		Plan Layouts Number of Rooms, Bedrooms, Baths	6 Rooms, 3 Bedrooms, 1 Bath	7 Rooms, 3 Bedrooms, 2 Bath	8 Rooms, 3 Bedrooms, 2.5 Bath
		Building Type SF Residence, Mid-Rise, High-Rise	SF Residence	SF Residence	SF Residence
		Average Square Footage < 2000 / 2000-5000 / 5000 +	<2000	2000-5000	2000-5000
		State Program Strength (Excellent, Good, Fair, Poor)	Poor	Fair	Good
		Maintenance Rating (Excellent, Good, Fair, Poor)	Good	Good	Good
		Crawlspace / Basement / Slab on grade Choose One	Basement	Basement	Basement
	BUILDING SYSTEMS	Above Grade Exterior Walls Wood/Metal? Exterior Cladding? Interior Finish?	Wood Siding, Wood Frame, Plaster	Wood Siding, Wood Frame, Drywall	Wood Siding, Wood Frame, Drywall
		Insulation Insulated, Y/N? Ceiling & walls R-value?	Insulated, Ceiling R10, Walls R4	Insulated, Ceiling R19, Walls R10	Insulated, Ceiling R38, Walls R19
		Roof or Flat? Roofing Material? Sloped	Sloped, Shingle	Sloped, Shingle	Sloped, Shingle
		Exterior Doors Material? Insulated?	Wood, Uninsulated	Wood, Uninsulated	Wood, Uninsulated
		Windows Single/double glazed? Material? U Factor/SHGC?	Single, Wood	Single, Wood	Double, Clad
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	No Housewrap, No VB, Yes Chimney, Sealant Fair	No Housewrap, Yes VB, Yes Chimney, Sealant Fair	Yes Housewrap, Yes VB, Yes Chimney, Sealant Good
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	Bath and Kitchen Fans	Bath and Kitchen Fans	Bath and Kitchen Fans
		Heating Water/Air/Radiant? Fuel? Efficiency?	Water, Oil, 70%	Water, Oil, 75%	Water, Oil/Gas, 80%
		Cooling Present? System or Appliance? SEER?	None	Appliance	Central
		Ductwork Material? % Leakage? Insulated?	None	None	Flex, 20% Leakage, Insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	Storage, Electric, 50 Gal.	Storage, Electric, 50 Gal.	Storage, Indirect, 50 Gal.
		Appliances Energy Star? Electric/Gas?	Electric, No Energy Star	Electric, No Energy Star	Electric/Gas, Yes Energy Star
		Lighting Incandescent/Fluorescent? Natural? Automation?	Incandescent	Incandescent	Incandescent

Table 7: Matrix of housing specifications for houses in Illinois from Criterium Engineers (7 of 10)

SECTOR	STATE		ILLINOIS	ILLINOIS	ILLINOIS
	TIME PERIOD		Before 1970	1971-1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		300	500	400
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(SF), Apt(A), Condo(C), Other(O)	SF	SF	SF
		Plan Layouts Number of Rooms, Bedrooms, Baths	Rooms 6, Bedrooms 3, Bath=1	Rooms 7 Bedrooms 3, Bath 1.5	Rooms 8, Bedrooms 3, Bath 2
		Building Type SF Residence, Mid-Rise, High-Rise	SF Residence	SF Residence	SF Residence
		Average Square Footage < 2000 / 2000-5000 / 5000 +	<2000	<2000	2000-5000
		State Program Strength (Excellent, Good, Fair, Poor)	Good	Good	Good
		Maintenance Rating (Excellent, Good, Fair, Poor)	Fair	Far	Good
	BUILDING SYSTEMS	Crawlspace / Basement / Slab on grade Choose One	Basement	Basement	Basement
		Above Grade Exterior Walls Exterior Cladding? Interior Finish? Wood/Metal?	Wood/wood/plaster	Wood/brick veneer & aluminum/drywall	Wood/brick veneer & vinyl/drywall
		Insulation Insulated, Y/N? Ceiling & walls R-value?	Insulation, Ceiling R11, Walls R3	Insulation, Ceiling R19, Walls, R9	Insulation, Ceiling R38 Walls, R19
		Roof or Flat? Roofing Material? Sloped	Sloped/shingles	Sloped/shingles	Sloped/shingles
		Exterior Doors Material? Insulated?	Wood/uninsulated	Metal/insulated	Metal/insulated
		Windows Single/double glazed? Material? U Factor/SHGC?	Single pane/metal	Double pane/metal	Double pane/vinyl
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	Felt/no vapor barrier/chimney/sealant=poor	Felt/no vapor barrier/chimney/sealant=poor	Tyvek/vapor barrier/no chimney/sealant=good
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	Bath fan vented to attic	Bath fan vented to attic	Bath fan to exterior
		Heating Water/Air/Radiant? Fuel? Efficiency?	Forced warm air/natural gas/Eff=80%	Forced warm air/natural gas/Eff=80+%	Forced warm air/natural gas/Eff=90+%
		Cooling Present? System or Appliance? SEER?	Window A/C units, CM(see below)	Central A/C, CM(see below)	Electric central A/C, CH(see below)
		Ductwork Material? % Leakage? Insulated?	Rigid metal/20% leakage/hot insulated	Rigid metal/20% leakage/hot insulated	Flexibe/<10% leakage/insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	Storage/40 gal natural gas/low efficiency	Storage/40 gal natural gas/low efficiency	Storage/50 gal natural gas/hi efficiency
		Appliances Energy Star? Electric/Gas?	Natural gas/no Energy Star	Natural gas/no Energy Star	Natural gas/Energy Star
		Lighting Incandescent/Fluorescent? Natural? Automation?	Incandescent/some natural/no automation	Incandescent & fluorescent/some natural/some automation	Incandescent & CFL/natural/automation

Table 8: Matrix of housing specifications for houses in Arizona from Criterium Engineers (8 of 10)

SECTOR	STATE		ARIZONA	ARIZONA	ARIZONA
	TIME PERIOD		Before 1970	1971- 1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		100	150	250
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(SF), Apt(A), Condo(C), Other(O)	SF	SF	SF
		Plan Layouts Number of Rooms, Bedrooms, Baths	Rooms 6, Bedrooms 3, Bath 1	Rooms 7, Bedrooms 3, Bath 1.5	Rooms 8, Bedrooms 4, Bath 2.5
		Building Type SF Residence, Mid-Rise, High-Rise	SF Residence	SF Residence	SF Residence
		Average Square Footage < 2000 / 2000-5000 / 5000 +	<2000	<2000	2000-5000
		State Program Strength (Excellent, Good, Fair, Poor)	Fair	Fair	Fair
		Maintenance Rating (Excellent, Good, Fair, Poor)	Fair	Good	Good
	BUILDING SYSTEMS	Crawlspace / Basement / Slab on grade Choose One	Slab on grade	Slab on grade	Slab on grade
		Above Grade Exterior Walls Wood/Metal? Exterior Cladding? Interior Finish?	Wood/wood/plaster	Wood/	Wood/stucco/drywall
		Insulation Insulated, Y/N? Ceiling & walls R-value?	Insulated Ceiling=R-12 Walls=none	Insulated Ceiling=R-12 Walls=none	Insulated Ceiling=R-28 Walls=R-12
		Roof or Flat? Roofing Material? Sloped	Sloped/shingle	Sloped/shingle	Sloped/tile
		Exterior Doors Material? Insulated?	Wood/uninsulated	Wood/uninsulated	Metal/insulated
		Windows Single/double glazed? Material? U Factor/SHGC?	Single glazed/wood	Double glazed/metal	Double glazed/metal
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	Felt paper/no vapor barrier/chimney/sealant=poor	Felt paper/no vapor barrier/chimney/sealant=fair	Tyvek wrap/vapor barrier/no chimney/sealant=good
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	Bath fan	Bath fan	Bath fan
		Heating Water/Air/Radiant? Fuel? Efficiency?	Natural gas or electric forced warm air, HM(see below)	Electric/heat pump/ HM(see below)	Electric/heat pump, HM(see below)
		Cooling Present? System or Appliance? SEER?	Evaporative (swamp) coolers, CM(see below)	Evaporative cooler A/C, CM(see below)	Electric/heat pump, CH(see below)
		Ductwork Material? % Leakage? Insulated?	Rigid/uninsulated	Rigid/uninsulated	Flexible/<10% leakage/insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	Storage/40 gal natural gas/ow efficiency	Storage/40 gal natural gas/low efficiency	Storage/50 gal natural gas/hi efficiency
		Appliances Energy Star? Electric/Gas?	Electric/no Energy Star	Electric/no Energy Star	Electric/Energy Star
		Lighting Incandescent/Fluorescent? Natural? Automation?	Incandescent/some natural/no automation	Incandescent/some natural/no automation	Incandescent and natural/some automation

Table 9: Matrix of housing specifications for houses in California from Criterium Engineers (9 of 10)

SECTOR	STATE		CALIFORNIA	CALIFORNIA	CALIFORNIA
	TIME PERIOD		Before 1970	1971- 1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		500	350	100
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(S-F), Apt(A), Condo(U), Other(O)	SF	SF	SF
		Plan Layouts Number of Rooms, Bedrooms, Baths	7/2/1	9/3/2	11/4/2.5
		Building Type SF Residence, Mid-Rise, High-Rise	SF Residence	SF Residence	SF Residence
		Average Square Footage < 2000 / 2000-5000 / 5000 +	<2000	<2000	2000-5000
		State Program Strength (Excellent, Good, Fair, Poor)	Excellent	Excellent	Good
		Maintenance Rating (Excellent, Good, Fair, Poor)	Poor	Fair	Fair
		Crawlspace / Basement / Slab on grade Choose One	Crawlspace	Crawlspace	Slab on grade
	BUILDING SYSTEMS	Above Grade Exterior Walls Wood/Metal? Exterior Cladding? Interior Finish?	Wood Frame, Stucco, Gypsum	Wood Frame, Stucco, Gypsum	Wood Frame, Stucco, Gypsum
		Insulation Insulated, Y/N? Ceiling & walls R-value?	Walls R-0, Ceiling R-19	Walls R-11, Ceiling R-19	Walls R-11, Ceiling R-19
		Roof or Flat? Roofing Material? Sloped	Sloped, Wood Shake	Sloped, Wood Shake	Sloped, Comp Shingle
		Exterior Doors Material? Insulated?	Wood Panel, Uninsulated	HC Wood, Uninsulated	Fiberglass, Uninsulated
		Windows Single/double glazed? Material? U Factor/SHGC?	Single Glazed, Aluminum Frame	Single Glazed, Aluminum Frame	Double Glazed, Vinyl Frame
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	Felt, No VB, Chimney, Poor Sealant	Felt, No VB, Chimney, Poor Sealant	Felt, No VB, Chimney, Good Sealant
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	Bath Fans vented to exterior, Kitchen Exhaust	Bath Fans vented to exterior, Kitchen Exhaust	Bath Fans vented to exterior, Kitchen Exhaust
		Heating Water/Air/Radiant? Fuel? Efficiency?	Air, Natural Gas, Eff=0.80	Air, Natural Gas, Eff=0.80	Air, Natural Gas, Eff=0.85
		Cooling Present? System or Appliance? SEER?	Central, CL(see below)	Central, CM(see below)	Central, CM(see below)
		Ductwork Material? % Leakage? Insulated?	Rigid, 20%, Insulated	Rigid, 20%, Insulated	Flex, 10%, Insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	Storage, 40 Gal, Vented, Eff=0.80	Storage, 40 Gal, Vented, Eff=0.80	Storage, 40 Gal, Vented, Eff=0.80
		Appliances Energy Star? Electric/Gas?	Gas, No Energy Star	Gas, No Energy Star	Gas, No Energy Star
		Lighting Incandescent/Fluorescent? Natural? Automation?	Incandescent, Limited Natural, No Automation	Incandescent, Limited Natural, No Automation	Incandescent, Limited Natural, No Automation

Table 10: Matrix of housing specifications for houses in Florida from Criterium Engineers (10 of 10)

SECTOR	STATE		FLORIDA	FLORIDA	FLORIDA
	TIME PERIOD		Before 1970	1971- 1989	1990 - Present
	(3 or less stories) -OR- (4+ Stories)		(3 or less Stories)	(3 or less Stories)	(3 or less Stories)
	ESTIMATED # OF UNITS INSPECTED		0	7,500	6,500
CRITERIA	CHARACTERISTICS	Unit Type Single Fam(SF), Apt(A), Condo(C), Other(O)	N/A	SF, A, C	SF, A, C
		Plan Layouts Number of Rooms, Bedrooms, Baths	N/A	5, 3, 2	5, 3, 2
		Building Type SF Residence, Mid-Rise, High-Rise	N/A	SF Residence	SF Residence
		Average Square Footage < 2000 / 2000-5000 / 5000 +	N/A	2000-6000	2000-6000
		State Program Strength (Excellent, Good, Fair, Poor)	N/A	Fair	Good
		Maintenance Rating (Excellent, Good, Fair, Poor)	N/A	Fair	Good
		Crawlspace / Basement / Slab on grade Choose One	N/A	Crawlspace	Slab-on-Grade
	BUILDING SYSTEMS	Above Grade Exterior Walls Exterior Cladding? Interior Finish? Wood/Metal?	N/A	Concrete Block Stucco (CBS), Drywall and Plaster interior	Concrete Block Stucco (CBS), Drywall and Plaster interior
		Insulation Insulated, Y/N? Ceiling & walls R-value?	N/A	Insulated, R19 Ceiling, R3 Walls	Insulated, R30 Ceiling, R3-R19 Walls
		Roof or Flat? Roofing Material? Sloped	N/A	Sloped, Flat, Tile, Shingle, Tar and Gravel	Sloped, Flat, Shingle, Tile, Modified Bitumen,
		Exterior Doors Material? Insulated?	N/A	Wood/Metal, Not Insulated	Wood/Metal, Not Insulated
		Windows Single/double glazed? Material? U Factor/SHGC?	N/A	Single Glazed, Auminum, Steel	Double Glazed, Aluminum
		Air Barrier / Infiltration Housewrap? Vapor Barrier? Chimney? Sealant(good,fair,poor)?	N/A	No Housewrap, No AB, Some Chimney, Fair Sealant	No Housewrap, No AB, Some Chimney, Good Sealant
		Mech Ventilation House/Bath Fans? Exhaust? Air Exchange?	N/A	Bath and Kitchen Fans, Exhaust Fans, No Air Exchange	Bath and Kitchen Fans, Exhaust Fans, No Air Exchange
		Heating Water/Air/Radiant? Fuel? Efficiency?	N/A	Gas, Electric	Gas, Electric
		Cooling Present? System or Appliance? SEER?	N/A	A/C, Reverse Cycle, CM	A/C, Reverse Cycle, CH
		Ductwork Material? % Leakage? Insulated?	N/A	F/G, Galv, 25% leakage, Insulated	F/G, Galv, 15% leakage, Insulated
		Water Heater Storage/On Demand? Size? Venting? Efficiency?	N/A	Storage, 30-66 Gal. Vented	Storage, 30-120 Gal. Vented
		Appliances Energy Star? Electric/Gas?	N/A	Electric, Gas, No Energy Star	Electric, Gas, Yes Energy Star
		Lighting Incandescent/Fluorescent? Natural? Automation?	N/A	Incandescent, Fluorescent, Natural, No auto	Incandescent, Fluorescent, Natural, Some auto