



Handout 04.16: Housing and Design Careers Cards

Print the thirteen cards (pages 1 to 3) on card stock, one set per table of four, and cut. Print the Project Chain sheet (page 4) and the “would I like this” self-check (page 5) one per student.

Every pay figure is a typical yearly range for the United States, rounded, from the Bureau of Labor Statistics Occupational Outlook Handbook (bls.gov/ooh) or, for the two jobs the handbook does not list separately, from job listings. Every one is marked [update]; the numbers move every year. Pay in the New York City area is usually higher than the national figure.

Pages 1 to 3: The thirteen career cards

Each card: the job in one plain sentence, what they did on the Okafor room, a day in the life, the path, the pay range, and where they work most.



Card 1: Architect

Picture line: a drafting pen and a rolled plan

In one sentence: designs buildings and the spaces inside them, and signs the plans so the town will let them be built.

On the Okafor room: drew the wider door and the new bathroom next door, checked that the walls could take it, and stamped the plan.

A day in the life: morning on the computer drawing plans; a site visit at noon to see the framing; afternoon meeting with the family about the budget.

Path: a five-year college degree in architecture, then about three years of paid work under a licensed architect, then a licensing exam. College degree.

Pay range: about \$70,000 to \$130,000 a year; median about \$95,000 [update].

Works most: an office, with site visits.



Card 2: Interior designer

Picture line: a paint chip fan and a floor plan

In one sentence: plans how a room works and looks: the layout, the furniture, the color, the light, and the finishes, for a client.

On the Okafor room: did what you did in Project 04, for pay: the client brief, the scale plan, the budget, the furniture, the color, the pitch.

A day in the life: a client meeting in the morning; measuring a room at noon; picking fabric and lights at a showroom; drawing the plan and pricing it in the afternoon.

Path: usually a two- or four-year degree in interior design; in New York, a state certification exam (NCIDQ) to use the title “certified interior designer.” Some start as a designer’s assistant. College degree, mostly.

Pay range: about \$40,000 to \$100,000; median about \$62,000 [update].

Works most: an office and clients’ homes.



Card 3: General contractor

Picture line: a hard hat and a clipboard

In one sentence: runs the whole job: hires the trades, orders the materials, keeps the schedule and the budget, and answers to the client.

On the Okafor room: hired the electrician, the plumber, and the painter; ordered the door; made sure the job finished in three weeks.

A day in the life: on the site by 7; calls to suppliers; a walk-through with the client; paperwork and permits at night.

Path: most start in a trade (carpentry is common) through a high school CTE program and an apprenticeship, then years on the job, then a contractor's license from the county. Some have a construction management degree. Apprenticeship or trade school, then experience.

Pay range: about \$60,000 to \$160,000; construction managers' median about \$105,000 [update]. Many own their business.

Works most: the job site.



Card 4: Electrician

Picture line: a wire and a switch

In one sentence: installs and repairs the wiring, outlets, switches, and lights that make a building work, safely and to code.

On the Okafor room: ran the new outlet by the bed, moved the light switch to 42 inches so he can reach it, and wired the night lights on the path.

A day in the life: a rough-in on a new house in the morning (wires in the open walls); a service call in the afternoon (a breaker that keeps tripping); reading the code book for a tricky job.

Path: a high school CTE electrical program, then a four- to five-year paid apprenticeship (about 8,000 hours on the job plus classes), then a journeyman license. Apprenticeship. Paid from day one.

Pay range: about \$40,000 to \$105,000; median about \$62,000 [update]. Union electricians in the New York area often earn more.

Works most: job sites and clients' homes.



Card 5: Plumber

Picture line: a wrench and a pipe

In one sentence: installs and repairs the pipes that bring water in and take waste out, plus fixtures like sinks, toilets, and showers.

On the Okafor room: moved the shower drain and installed the walk-in shower with a grab bar next door.

A day in the life: a new bathroom rough-in; an emergency call for a burst pipe; a water heater swap.

Path: high school CTE, then a four- to five-year paid apprenticeship, then a license. Apprenticeship.

Pay range: about \$40,000 to \$105,000; median about \$63,000 [update].

Works most: job sites and clients' homes.



Card 6: HVAC technician

Picture line: a thermostat

In one sentence: installs and repairs heating, ventilation, and air conditioning systems (HVAC).

On the Okafor room: sized the new heat and air for the room and added a vent so the bathroom does not grow mold.

A day in the life: a furnace tune-up in the morning; an air conditioner install in the afternoon; in a heat wave, ten calls a day.

Path: a six-month to two-year trade school program or a high school CTE program, then a paid apprenticeship of two to five years, plus an EPA certification to handle refrigerants. Trade school or apprenticeship.

Pay range: about \$37,000 to \$90,000; median about \$60,000 [update].

Works most: clients' homes and buildings.



Card 7: Real estate agent

Picture line: a house key

In one sentence: helps people buy, sell, or rent homes, and gets paid a percentage of the sale.

On the Okafor room: sold the family this house two years ago, and will list it someday with “accessible first-floor bedroom and bath” as a selling point.

A day in the life: showings on the weekend; phone calls and paperwork on weekdays; an open house; a closing at a lawyer’s office.

Path: a 77-hour course in New York, a state exam, and a license; no degree required. License after a course. Pay depends on sales.

Pay range: about \$30,000 to \$130,000; median about \$55,000 [update]. Commission, so it varies a lot.

Works most: clients’ homes and an office.



Card 8: Property manager

Picture line: a building with many windows

In one sentence: runs a building or a set of rentals for the owner: tenants, repairs, rent, and rules.

On the Okafor room: if the family rented, the property manager would approve the wider door and hire the contractor.

A day in the life: a tenant's leak at 8 a.m.; a walk-through of an empty apartment; rent records; a call with the owner about the roof.

Path: experience in rentals or an office, often a real estate license; some have a business degree. License and experience.

Pay range: about \$40,000 to \$115,000; median about \$65,000 [update].

Works most: an office and the buildings.



Card 9: Home inspector

Picture line: a flashlight and a checklist

In one sentence: checks a house top to bottom before a sale, or checks finished work against the building code, for the buyer or the town.

On the Okafor room: checked that the new outlet was wired right, the door was framed right, and the shower drained right. Works for the buyer or the town, not the contractor.

A day in the life: two or three inspections, each two to three hours in an attic, a basement, and a crawl space; a written report with photos.

Path: in New York, a 140-hour course plus 40 hours of supervised inspections, then a state exam and license; many are former contractors. License after a course and experience.

Pay range: about \$45,000 to \$105,000; construction and building inspectors' median about \$70,000 [update].

Works most: other people's houses.

Card 10: Energy auditor

Picture line: a house with arrows showing heat leaking out

In one sentence: tests a home to find where it wastes energy (drafts, thin insulation, old appliances) and tells the owner what to fix first.

On the Okafor room: ran a blower-door test, found the leak around the old window, and recommended the sealing and the LED bulbs. The family's heating bill dropped.

A day in the life: one or two home visits with a blower door and a thermal camera; a report with the savings for each fix; a call with the utility company's rebate office.

Path: a certification course (BPI or RESNET, a few weeks) plus experience; some come from HVAC or construction. Certification after a course.

Pay range: about \$45,000 to \$80,000 (from job listings; the handbook does not list this job separately) [update].

Works most: clients' homes.



Card 11: Landscape designer

Picture line: a tree and a path

In one sentence: designs the outside: yards, paths, ramps, plantings, and drainage, so the outside works as well as the inside.

On the Okafor room: designed the ramp from the driveway to the door at the right slope, with a handrail, and moved the plantings so the walker has a clear path.

A day in the life: a site visit with a tape measure; a plan on paper or a computer; a morning with the crew when the ramp is poured.

Path: a landscape architect has a college degree and a license (that is who stamps the ramp plan); a landscape designer may learn through a two-year program or on a crew. College degree for the architect; trade or two-year program for the designer.

Pay range: about \$50,000 to \$120,000; landscape architects' median about \$80,000 [update].

Works most: outside, and an office.



Card 12: Furniture maker

Picture line: a saw and a chair

In one sentence: builds furniture from wood and other materials, by hand and with machines, often to a customer's measurements.

On the Okafor room: built the bed frame at 22 inches high with a solid side rail he can push up from, because no store sold one at that height.

A day in the life: cutting and joining in a shop; sanding and finishing; delivering and fitting a piece in a customer's home.

Path: high school CTE woodworking, then a shop apprenticeship or a two-year program; many are self-employed. Apprenticeship or trade school.

Pay range: about \$30,000 to \$65,000; woodworkers' median about \$42,000 [update]. Custom makers who own a shop can earn more.

Works most: a workshop.

Card 13: Sustainability consultant

Picture line: a leaf on a blueprint

In one sentence: advises builders, businesses, and towns on how to use less energy, water, and material, and how to prove it (green building certifications).

On the Okafor room: picked the low-VOC paint, the LED lighting plan, and the insulation for the whole renovation, and filed the paperwork for the utility rebate.

A day in the life: a plan review with an architect; a site visit to check the insulation before the walls close; a report on a building's energy use; a training for a company's staff.

Path: usually a college degree (environmental science, engineering, architecture, or business) plus a green building credential (LEED is the common one). College degree.

Pay range: about \$55,000 to \$110,000 (from job listings; the handbook does not list this job separately) [update].

Works most: an office, with site visits.

Page 4: The Project Chain sheet

Name: _____ Date: _____

Part 1: The chain

Grandpa Okafor's room is being built for real. Write the job that does each step.

Step	Who does it
Draws the wider door and the new bathroom and stamps the plan	
Plans the room's layout, furniture, color, and light for the family	
Runs the job, hires the trades, keeps the schedule and the budget	
Wires the outlet by the bed and moves the switch to 42 inches	
Moves the shower drain and installs the walk-in shower	
Sizes the heat and air and vents the bathroom	
Checks the finished work against the code for the buyer or the town	
Tests where the house leaks heat and recommends the fixes	
Picks the low-VOC paint and the LED plan and files the rebate	
Designs the ramp and the clear path outside	
Builds the bed at 22 inches high because no store sells one	
Sold the family the house and will list it someday	
Would approve the work if the family rented	

Part 2: Sort the thirteen cards

By path (write the card numbers):

- College degree: _____
- Apprenticeship or trade school after high school CTE: _____
- License or certification after a course and experience: _____

By where they work most:

- Mostly an office: _____
- Mostly a job site or a workshop: _____
- Mostly clients' homes: _____

Part 3: Compare three careers

	Career 1: _____	Career 2: _____	Career 3: _____
What they do (one sentence)			
A day in the life (one thing)			
The path (degree / apprenticeship or trade / license after a course)			
Pay range <i>[update]</i>			
One thing I would like about it			
One thing I would not like			

Word bank: job (iş / trabalho / trabajo), build (inşa etmek / construire / construir), fix (tamir etmek / consertar / arreglar), draw (çizmek / desenhlar / dibujar), sell (satmak / vender / vender), check (kontrol etmek / verificar / revisar). *[check with a native speaker]*

Part 4: Predict the 2045 house

Two facts about who lives in houses:

1. The share of people in the United States aged 65 and over is rising, and it is projected to keep rising.
2. The average household has fewer people in it than it did fifty years ago.

Two technologies already going into new houses:

1. Sensors and controls: a thermostat that learns your schedule, a leak sensor under the sink, a lock and a camera on a phone.
2. Heat pumps with better insulation, and modular building, where rooms are built in a factory and trucked to the lot.

Pick one fact: _____ **Pick one technology:** _____

One thing a house designed in 2045 will have that mine does not, and why:





One thing that house will not need any more, and why:



Sentence frames: "By 2045 a house will have ___ because ." "***A house will not need*** any more because ___."

Grade 8 stretch: which of the thirteen careers gains work because of your prediction, and which one loses it? _____

Page 5: “Would I like this?” self-check

Name: _____

Rate each line 1 (no), 2 (a little), 3 (yes), 4 (a lot). Use what you actually did in Project 04.

Statement	1 to 4	Careers this points to
I liked measuring and drawing the plan to scale		architect, interior designer, landscape designer
I liked building the model with my hands		furniture maker, electrician, plumber, HVAC, contractor
I liked the budget and the trade-offs		contractor, property manager, real estate agent, sustainability consultant
I liked pitching to the client and answering the question		real estate agent, interior designer, contractor
I liked finding the green choice		energy auditor, sustainability consultant
I liked finding the safety feature and checking the paths		home inspector, electrician, architect
I like being outside		landscape designer, contractor, energy auditor
I like fixing things that are broken		electrician, plumber, HVAC, home inspector
I like working mostly alone		furniture maker, energy auditor, home inspector
I like working with people all day		real estate agent, interior designer, property manager
I want to be in charge of the whole job		contractor, property manager, architect
I want to be paid while I learn instead of paying for school		electrician, plumber, HVAC, furniture maker, contractor

My two careers

Career 1: _____ My fit rating (1 to 4): _____ Evidence from Project 04: “I rated it _____ because in the project I _____.”

Career 2: _____ My fit rating (1 to 4): _____ Evidence from Project 04: “I rated it _____ because in the project I _____.”



One CTE program near me that leads to one of these (from the teacher): _____
[Sal: name the local BOCES or your school's CTE partner on the slide]

Exit line (tear off)

The career I fit best is _____ because in the project I _____. The path to it is _____.

Teacher key

Part 1, the chain (in order): architect; interior designer; general contractor; electrician; plumber; HVAC technician; home inspector; energy auditor; sustainability consultant; landscape designer; furniture maker; real estate agent; property manager.

Part 2, by path:

- College degree: 1 architect, 2 interior designer (mostly), 11 landscape designer (the landscape architect), 13 sustainability consultant.
- Apprenticeship or trade school: 3 general contractor (usually), 4 electrician, 5 plumber, 6 HVAC technician, 12 furniture maker.
- License or certification after a course and experience: 7 real estate agent, 8 property manager, 9 home inspector, 10 energy auditor. Accept a defended alternative (a contractor with a construction management degree; an interior designer who started as an assistant).

Part 2, by workplace: mostly office: 1, 2, 8, 13; mostly a job site or workshop: 3, 4, 5, 12; mostly clients' homes: 6, 7, 9, 10, 11 (11 is outside). Accept "all three" for 3 and 11 if defended.

Part 4, the 2045 prediction. There is no answer key. Score it complete, partial, or missing: complete means one of the two facts and one of the two technologies are named and the prediction follows from both. Strong answers connect the aging fact to design, not to a product: no-step entrances and wider doors become standard rather than an upgrade, first-floor bedrooms and bathrooms, lever handles, better light. Strong answers on smaller households: fewer and smaller bedrooms, shared buildings with shared laundry and shared outdoor space, more one-bedroom units. Strong answers on sensors: fewer wall switches and thermostats, more outlets and data runs, a place to charge things in every room. Strong answers on heat pumps and modular: no chimney, no oil tank, a smaller mechanical closet, rooms that arrive already wired. Strong "will not need" answers: a chimney, a landline jack, a two-car garage, a formal dining room, a big basement freezer.

Reject the gadget answer. "A robot that folds laundry" is not a design prediction until the student says what changes about the room. The question to ask is "What has to change about the room for that to work?" A student who answers "the closet needs an outlet and a drain" has made the design prediction and gets full credit.

Sources for the two facts: U.S. Census Bureau, population projections by age and the historical series on average household size (census.gov). Both are given as a direction, not a figure, so the page does not go stale. *[Sal: if you print the actual numbers, print the year next to each.]*

Sources for the cards: U.S. Bureau of Labor Statistics, Occupational Outlook Handbook, entries for architects; interior designers; construction managers; electricians; plumbers, pipefitters, and steamfitters; heating, air conditioning, and refrigeration mechanics and installers; real estate brokers and sales agents; property, real estate, and community association managers; construction and building inspectors; landscape architects;



woodworkers. New York license facts: NYS Department of State (real estate salesperson, 77-hour course; home inspector, 140 hours plus 40 supervised); NYS Office of the Professions (architecture; certified interior designer). Energy auditor and sustainability consultant ranges are from job listings. *[Sal: check every number before you print; they are all marked [update].]*