

**PIANO BUILDER  
(Hybrid)**

**APPENDIX A**

O\*NET CODE 49-9063

***Hybrid apprenticeships are premised on attainment of demonstrated, observable and measurable competencies in addition to meeting time-based work experience and on-the-job learning requirements.***

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

**WORK PROCESSES**

**Approximate Hours**

**A. Workplace Orientation**

**80-100**

1. Demonstrate knowledge of workplace policies, procedures, etc.
2. Develop a familiarity with factory and ensure workplace safety around equipment.
3. Keep areas free of unsafe conditions and materials.

**B. Pattern Shop 80/100**

1. Sharpen and maintain hand tools.
2. Setup machine tools and maintenance.
3. Possess an understanding of joinery methods and techniques.
4. Participate in pattern shop work, aiding in fabrication of tools, patterns/jigs, and fixtures, etc.
5. Learn to read drawings.

**C. Mill**

**80-100**

1. Action cell: mold making, conditioning, machining, individual part assembly and inspecting.
2. Assemble action tubing, action stack, let-off buttons.
3. Inspect hammer felt sheets, cut and skive felt, press hammers, clean off hammers, cut apart hammers, bore and install wires, bore hanging holes, trim and cove, arc tails, inspect for quality.

4. Fabricate and assemble backchecks, assemble damper trays and install underlevers.
5. Observe and participate in factory mill work procedures, including wood selection, matching, repair, bridge making, keyed making, and case parts fabrication.
6. Use appropriate power tools.

**D. Rim 80-100**

1. Observe and participate in factory rim bending procedure, learning processes of gluing, and bending rims, gluing, and bending bridges, conditioning, veneer cutting and matching, veneer preparation, veneer gluing. Use appropriate power tools.

**E. Case 80-100**

1. Observe and participate in factory case construction procedures: rim fraising, cornice and wrest plank assembly, wall cornice and cross block installation, belly installation, routing rims pockets, arm fraising, key bed preparation and installation, crossmember installation, block fabrication.

**F. Belly 180-200**

1. Drill wrest planks prepare duplexes and felts for stringing.
2. Observe and participate in stringing pianos both by hand and by machine, setting coils, becketts, and tuning pin height. Learn string and agraffe repair. Inspect for quality of work.
3. Install trapwork, legs, lyres, and Spirio tray. Align parts for optimal function.

**G. Grand Finishing 1480-1500**

1. Observe and participate in Action Assembly operations: inspect quality of action parts, assemble hammer shanks and repetitions to action stack, inspect hammers, glue hammers to shanks, tail hammers. Inspect for quality of work.
2. Observe and participate in Forefinish operations: prepare and modify keyframes according to specifications. Set action stack height, fore/aft, and side-to-side position and determine capstan location.
3. Drill holes in keys, install capstans, half rounds, and glider studs, install dag blocks, align action stack to keys, cut and install keyframe rest block.

4. Set keybed and keyframe crown, route channel for shift lever, install keyframe return spring, bed front and back rails, install backchecks. Inspect for quality of work.
5. Execute Action Regulation operations according to specifications: prepare keyframes by gluing felts and addressing mortise friction. Align parts, set key height, key level, hammer blow distance, key touch, let-off, drop, fly position, balancier height, backcheck alignment and checking height, repetition spring strength, aftertouch, and troubleshooting. Inspect for quality of work.
6. Execute Damper Assembly operations according to specification: fabricate Spirio stop rails, cut damper moldings, layout and glue damper felts, joint, drill, bush and install damper guide rails, install damper tray and pitmans, set tray evenness and key timing, making wire bends for correct damper function, troubleshooting.
7. Install sostenuto and regulate for proper function.
8. Critically inspect and evaluate quality of damper regulation and make adjustments according to the piano's needs, checking tray height/levelness, key timing, tray timing, stop rail height, sostenuto, and other required elements.
9. Execute Fly Finishing operations according to specifications: machine and install key blocks, key block hardware
10. Observe and participate in factory procedures for fabricating and assembling upright pianos according to factory procedures and specifications.

## **H. Tone Regulation**

**1360-1400**

1. Observe and participate in factory tuning procedures: string spacing, string stretching, chip tuning, rough tuning, and standard tuning at different frequencies according to specification.
2. Observe and participate in Pre-Voice procedure: shape hammers, set strike point, seat strings, and build tone (needle/juice). Inspect for quality of work.
3. Observe and participate in Weigh Off procedure: evaluate friction, weigh off keys, drill and insert leads, and polish/repair keys and key tops.
4. Observe and participate in Regulation Overhaul procedure: align parts, bed keyframe, refine key level, refine regulation parameters according to specification. Inspect for quality of work.

5. Observe and participate in Final Voice and Final Tone Inspection procedures: alignment refinement, soft pedal needling, string leveling, hammer shaping/cleaning, strike point adjustment, hammer fitting, tuning, tone building, juicing and needling, evening out tone, acquiring artist feedback. Inspect for quality of work.
6. Observe and participate in Spirio assembly, burn-in, calibration, and troubleshooting according to factory specifications.

**I. Shipping**

**80-100**

1. Observe and participate in final assembly, polishing and crating operations: top fitting, fallboard and keylid fitting, wipe-off, crating.
2. Gain an understanding of quality inspections.

**Approximate Total Hours**

**3500 – 3700**

**Apprentices in this Hybrid Apprenticeship Program shall participate in no fewer than 3500 documented hours of on-the-job training, and until they have demonstrated a competency for each category in the Work Processes, with the understanding competency will be demonstrated reasonably proximate to the maximum on-the-job training hours. Competency Assessment described in Appendix B.**

*Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to <https://dol.ny.gov/public-work-and-prevailing-wage>*

**PIANO BUILDER**  
**APPENDIX B**  
**RELATED INSTRUCTION**

**Workplace**

1. General Workplace Safety
2. Sexual Harassment Preventing Training – must comply with Section 201-g of the Labor Law

**Job Skills and Training**

1. Tuning
  - a. Music Theory
  - b. Acoustic Theory
  - c. Unison Tuning
  - d. Ear Training
  - e. Interval Identification
  - f. Inharmonicity/Stretch
  - g. Stability
2. Woodworking
  - a. Safety
  - b. Mathematics and Measurement Tools
  - c. Wood Technology
  - d. Adhesives
3. Regulation
  - a. Parts/nomenclature
  - b. Function
  - c. Alignment
  - d. Friction
  - e. Foundational Specifications
4. Dampers
  - a. Felt Layout and Gluing
  - b. Wire Insertion
  - c. Wire Bending
  - d. Fundamentals and Techniques
  - e. Sostenuto Installation Regulation

- f. Troubleshooting
- 5. Voicing Fundamentals
  - a. Hammer Fabrication
  - b. Tone Building: lacquer/thinner mixing and application, needling, evening out tone
- 6. Spirio (electronic player system)
  - a. Technical Specifications
  - b. Burn In
  - c. Calibration
  - d. Troubleshooting

### **Competency Assessment**

- 1. Test Prep
- 2. Written/Hands-On Proficiency Examination(s)

A minimum of 300 hours of Related Instruction are required for each Apprentice.

Appendix B topics are approved by New York State Education Department.