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FGF PELLET 3D PRINTING

ADDITIVE MANUFACTURING INDUSTRY SOLUTIONS

V1.1

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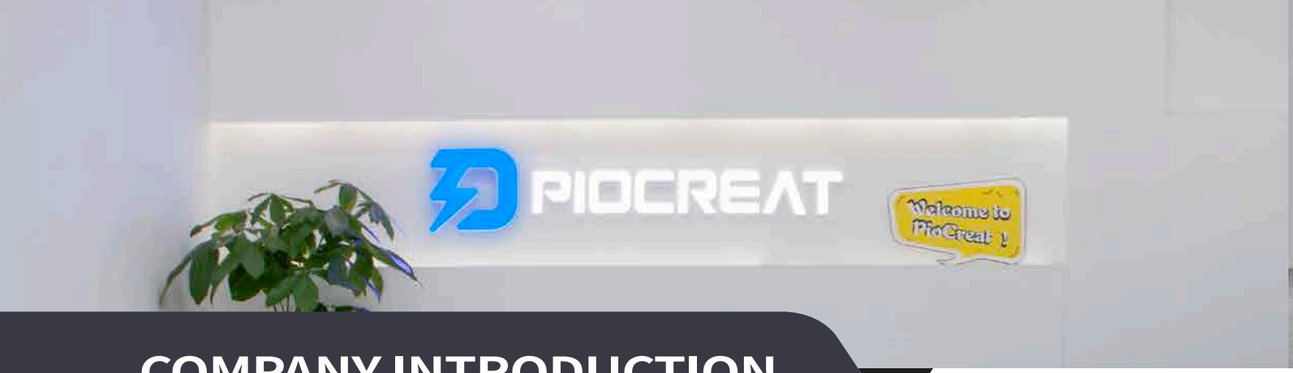
Learn more

CONTENT



COMPANY INTRODUCTION

ABOUT PIOCREAT

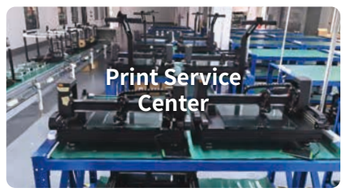
Founded in 2015, Shenzhen PioCreat 3d Technology Co., Ltd. is a high-tech company specializing in the entire industrial chain of 3D printing.

With independent R&D at its core and a complete IP system, the company is dedicated to providing global users with comprehensive 3D printing solutions spanning from consumer-grade to industrial-grade applications.

180+ Global Agents

60000+ Global Users

1800+ Corporate Clients



TECHNICAL DVANTAGES

PIOCREAT adopts Fused Granular Fabrication (FGF) technology and a new generation of screw extrusion technology to develop industrial-grade, high-performance series of 3D printers: G5Ultra, G12 and G40, all of which are printed with granular, polymer composite materials, with the advantages of low cost of materials, fast speed of print molding, high strength of the product, and outdoor weathering, etc., which are widely used in indoor and outdoor sculpture, shaped curtain wall, furniture, new material research and development, recycled materials, automobiles, yachts, aviation and other application markets.

HONOR APTITUDE

FGF Pellet
3D Printing Solution

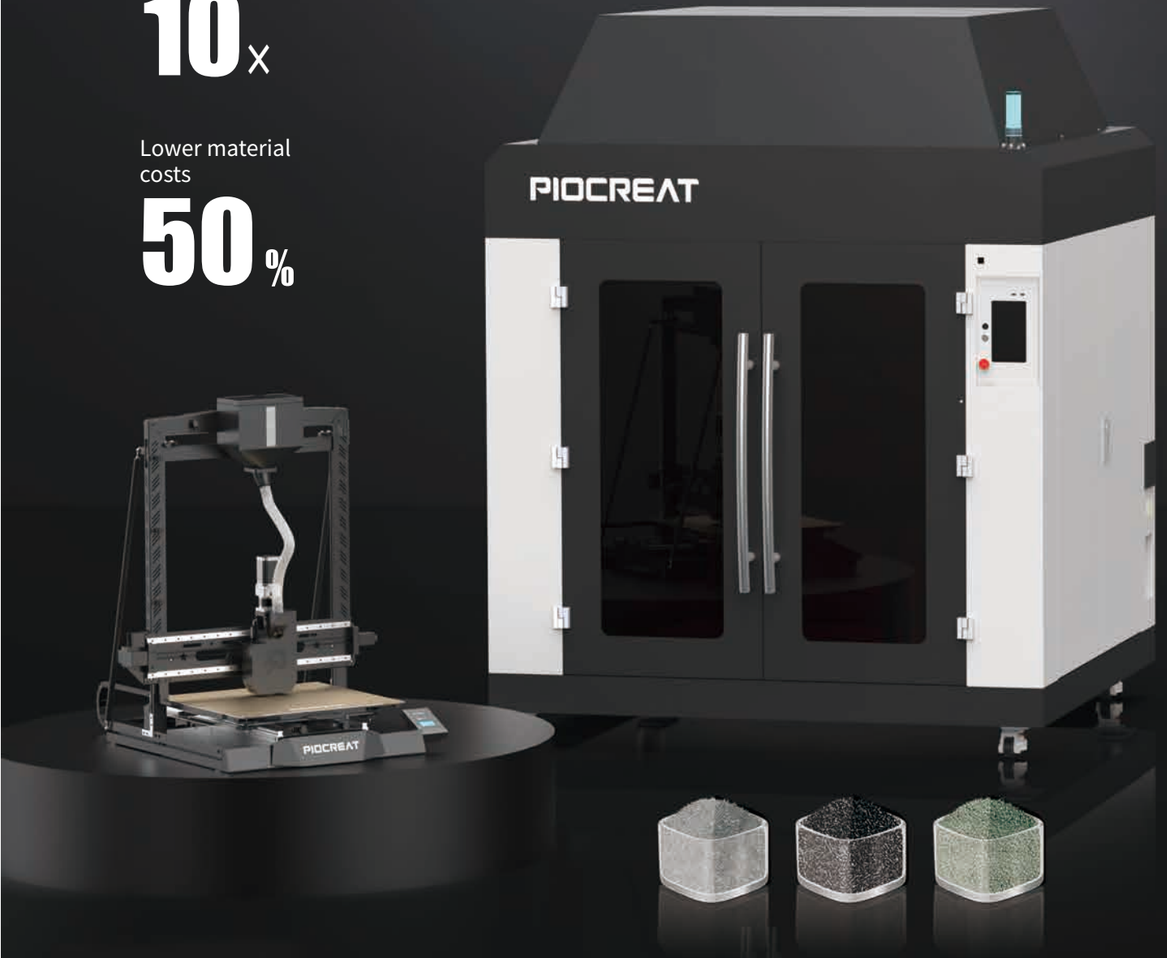
Our 3D printing technology has been widely recognized by large companies in multiple industries such as sculpture, furniture, aerospace, and automotive. The FGF pellet 3D printer can increase the printing efficiency by 10 times, reduce the material cost by ⩾50%, and cut down the capital equipment and operating expenses.

Printing Efficiency Improvement

10x

Lower material costs

50%



COMPARISON CASE

Comparison between FGF 3D-printed PETG sculptures and sculptures made of traditional fiberglass materials

Programs	Cost	Time	Personnel
FGF 3D Printed Sculpture 5mm thick 1m²PETG material	Consumes 9kg of consumables. The total cost is about **225 RMB**.	About **2** hours	Just need to know how to use a computer. 2-3 days of training to master the basics. One week to be able to operate normally.
Traditional sculpture crafting 5mm thick 1m² glass fiber cloth + resin	The total cost is around 800 RMB	**4-6** hours	Skilled workers are needed. Generally, training takes 2-3 months to master the basics.5-6 months to become proficient.

Lower material costs by ⩾50% | Increase work efficiency by 2 times | Easy to operate and quick to learn

RECYCLING GRANULATION

This is a green innovation, our equipment supports 3D printing with pellets made from renewable plastics, i.e. printing with recycled pellets, flakes or regrind materials, which is more environmentally friendly and brings us closer to the dream of a circular economy.

TECHNICAL ADVANTAGES

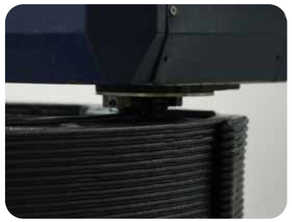
Principle of FGF technology: long screw in the extruder rotates to extrude the melt materials to fabricate models layer by layer.

SLICING SOFTWARE

Piocreat Slicer

Piocreat_Slicer is an all-in-one additive manufacturing collaboration platform for automated 3D model slicing, online control, monitoring and print optimization. Piocreat_Slicer provides the best slicing experience for end customers of the Piocreat G series printers. piocreat_slicer has a simple, comprehensive and easy-to-use interface, so customers only need to prepare the print file before printing, and even novice users can have a good user experience to ensure that what you see is what you get.

Advantage 1 Self-developed high flow rate screw extrusion design

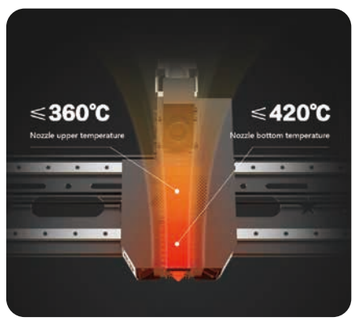


- Strong extrusion force, flexible selection of 0.4-8mm diameter nozzle.
- Printing speed up to 25kg/h, under the premise of ensuring the stability and accuracy of the gantry (±0.1mm/1000mm), the printing speed is 10m/min.

- G5Ultra: 0.4-2.0mm (3.0mm optional), standard 0.8/1.0/2.0mm
- G12: 0.8-4mm (standard with 1.2/1.5/2.0/3.0/ 4.0mm nozzles)
- G40: Equipped with 3-8mm high flow screw extrusion nozzles

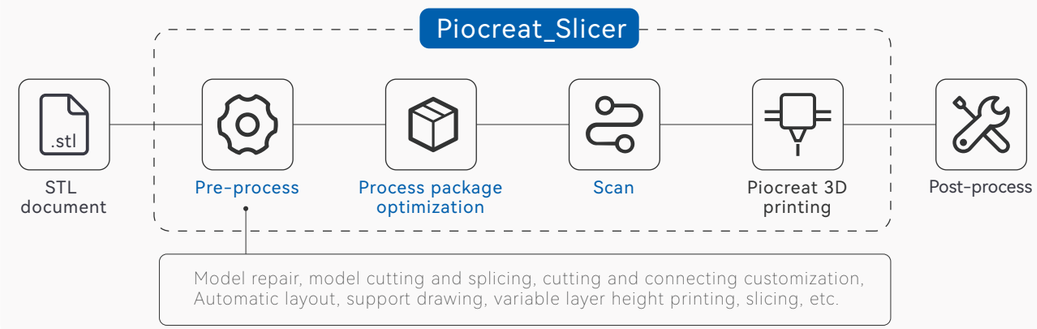
Advantage 2 Sectional heating of nozzles

- The new generation of screw extruder printheads has a multi-stage split-control heating function, which accurately controls the printing temperatures in the feeding, compression and metering sections respectively;
- The maximum heating temperature of the extruder can reach 450°C, which exceeds the melting point of most granular materials, and meets the demand for printing of various materials;
- The print head can retract, enabling more stable, smooth and non - blocking material discharge, to ensure fast and stable printing.



G5Ultra
Schematic diagram of segmented heating effect

3D Printing Process Solutions



- Hot bed zoning function
- Variable line width and layer height function
- Better path planning
- Automatic speed change function
- Automatic cooling regulation
- Customize one-click support generation
- Post-processing slice preview
- Automatic configuration of process parameters

G5Ultra

GREEN INNOVATION SMART FUTURE

Printing size

500×500×400mm

Application Areas

Material testing, mold manufacturing, industrial parts, daily-use furniture, handicrafts, footwear industry, etc.

New generation of screw extruder printheads

The maximum temperature is ⩽420°C. It has a strong extrusion force and enables stable and rapid printing.

Lack of material alarm

Printing can continue after refilling the material, and the printing success rate is over 95%.

Intelligent laser ranging 64-point leveling system

It enables faster leveling and higher precision, ensuring real-time performance and high safety during the leveling operation.

Max. 220mm/s print speed

The extrusion flow rate reaches 0.8 kg/h, enabling faster printing speed.

Technical Parameters		G5Ultra	
Molding tech	FGF	Nozzle diameter	0.4-2.0mm (optional 3.0mm) Standard: 0.8/1.0/2.0mm
Printing size	500×500×400mm	Layer thickness	0.2-1.0mm
Machine size	765×890×1040mm	Maximum speed	220mm/s
Package size	845×990×510mm	Slicing software	Piocreat_Slicer/Cura/Linux_x64
Heating bed temperature	≤120℃	File transfer	USB disk / WIFI
Upper nozzle temperature	≤360℃	N.W.	43kg
Lower nozzle temperature	≤420℃	G.W	70kg
Languages	English/Chinese/German/Spanish/French/Italian/Japanese/Portugal/Russian/Turkish		
Printing materials	PLA/PC/ABS/PETG/PETG-GF/PP/TPU/PA-CF/ABS-CF/PC-CF and other composite materials		

G12

Innovation-driven Era
Quality in Command

Printing size

1200×1000×1000mm

Application Areas

Daily utensils, mold manufacturing, industrial parts, lighting fixture manufacturing, sculpture, automotive industry, etc.

New generation of screw extruder printheads

The maximum temperature is ⩽450°C. It has a strong extrusion force, and the print head can retract, ensuring more stable, smooth material output without clogging.

Quick release platform design

You can directly pull out the platform board by twisting the handle; Bend the platform to quickly remove the mold.

Intelligent laser ranging 120-point leveling system

Ensure real-time performance and high safety during the leveling operation; The print won't curl up at the edges, and the molding success rate reaches 99%.

Zone heating hot bed

Automatic zoned heating helps save energy and extends the machine's lifespan. The heated bed can be preheated to 80°C in less than 3 minutes.

Technical Parameters		G12	
Molding tech	FGF	Nozzle diameter	0.8-4.0mm, Standard (1.2/1.5/2.0/3.0/4.0mm)
Printing size	1200×1000×1000mm	Layer thickness	0.2-2.0mm
Machine size	2135×1775×2305mm	Maximum speed	90mm/s
Package size	1980×1810×2150mm	Slicing software	Piocreat_Slicer/Cura/Simplify3D
Heating bed temperature	≤130℃	File transfer	USB disk / WIFI
Upper nozzle temperature	≤440℃	N.W.	750kg
Lower nozzle temperature	≤450℃	G.W	1285kg
Languages	English/Simplified Chinese/German/Spanish/French/Italian/Japanese/Portuguese		
Printing materials	PLA/PC/ABS/PETG/PA-CF/PETG-GF/PP/TPU/ABS-CF/PC-CF/some modified and composite materials		

G40

LARGE GANTRY PROCESSING CENTER

Printing size

3725×2500×1330mm

Processing size

3400×2500×1330mm

Application Areas

Print/process large to extra-large items like components, molds, and models. Widely used in aerospace, auto manufacturing, wind power, yacht & shipbuilding, home life, and urban landscapes.

Additive and subtractive manufacturing

Integrate 3D printing and CNC 5-axis machining, achieving both printing and processing functions in one machine.

High-output screw extrusion

It can use nozzles with a large aperture of 3 - 8 mm, and the extrusion rate is ⩽ 25 kg/h.

6-partition workbench

Optional area-controlled heating helps avoid electricity waste and improves the stability of the printed base layer.

High Performance Pressure Wheel

Improve the compactness of the printing material and make the bonding between printing layers stronger.

High-speed and high-precision machining

It is equipped with a high-speed spindle with a power of 8.5 KW and a speed of 24,000 r/min.

Auto feeding + drying + dehumidification

A fully automatic three-in-one feeding system provides dry materials continuously 24/7.

Technical Parameters	G40
Machine size: 5962×4220×4800mm	Slicer: Piocreat_Slicer
Three-axis positioning accuracy: ±0.1mm/m	Total Power: ≈65kW
Processing materials: Plastics and modified composite materials	N.W.: ≈15000kg
Printing materials: PLA/PETG/PVC/ABS/PC/PA/HDPE/TPU/EVA/PC+ABS/PETG+GF/PP+GF/PA+GF/ABS+GF/PC+CF	
Print Mode	**Processing mode**
Nozzle diameter: 3~8mm	Spindle power: 8.5kW
Maximum heating: 120°C	Rotation angle: ±120° ASSE A, ±320° ASSE C
Extrusion volume: Max.25kg/h	Spindle speed: 24000r/min
Print speed: Max.10m/min	Processing speed: Max.10m/min

Recycling Pelletizing Systems

The 3D Print Recycling Station

Our company's machine can convert discarded models into usable granular materials.

The specific operation process is as follows: First, crush the discarded models. Then, put the crushed scraps into the machine. Heat them until they are in a molten state and extrude them into filaments. After the cooling process, cut them into granules, thus achieving the recycling of materials.

Cut filaments into granules

Cooling Wires

Melt + extrude for filaments

CXSD-ZL30

- Design capacity: 3kg/h
- Pulverized material size: ⩽5x5x5mm
- Extrusion direction: Right-to-left
- Heating temperature: ⩽300°C
- Control area: 2
- Power supply specification: AC 220V
- Motor power: 1.5kW
- Heating power: 1.8kW
- Machine size: 720×400×920mm

CXSD-QL30

- Pelletizing capacity: ⩽20kg/h
- Pelletizing specification: ≈ϕ3x3mm
- Power Specification: AC220V
- Equipment Power: 1.5kW
- Machine Size: 500×500×700mm

Entire Machine

- Rated Total Power: 4.8kW
- Package size: 1250×640×1088mm

PET+CF

Low warpage and high dimensional stability. Suitable for industrial manufacturing, automotive industry, creative design, etc.

Printing temperature:： 250-280°C

PA+CF

It can withstand high temperatures up to 150°C. It is suitable for industrial metallurgical tools,
jigs and automobile parts.

Printing temperature: 265 - 290°C

PC+CF

It can be used to manufacture molds and functional parts with an operating temperature of up to 110 °C.

Printing temperature: 270 - 280 °C

ABS+CF

Easy to print, excellent strength, outstanding dimensional stability and stunning surface finish.

Printing temperature: 220 - 250°C

PETG+GF

Increased strength but more brittle than PETG. It can be used to manufacture furniture, decoration, and all kinds of prototypes.

Printing temperature: 210 - 240°C

PP

Glass fiber reinforced PP, excellent mechanical properties, suitable for various industries.

Printing temperature: 250 - 290°C

rPETG

Recycled material with high transparency and great environmental advantages, which can be used in the manufacture of furniture, decoration and all kinds of prototypes.

Printing temperature: 230 - 250°C

rPLA

Recycled material, highly environmentally friendly, with good biodegradability, suitable for indoor decoration, furniture and other scenes.

Printing temperature: 190 - 210°C

ABS

With excellent mechanical properties and dimensional stability, it is easy to process and mold, and can be used to create molds for use.

Printing temperature: 190 - 220°C

PLA

It has good biodegradability and is suitable for indoor decoration, furniture and other scenes.

Printing temperature: 190 - 210°C

PETG

Highly transparent, easy to print and with environmental advantages, it can be used to manufacture furniture, decorations, and all kinds of prototypes.

Printing temperature: 210 - 240°C

TPU

Flexible and elastic, suitable for rehabilitation aids and rubber-like products.

Printing temperature: 180 - 195°C

Platform glue

Anti-Warpage 3D Platform Glue
Shake well before use!!!

PEI magnetic platform

Heating up quickly,reducing waiting time for printing.The platform is easy to put and take, can be bent,easy to take off the models.

Nozzles

Various types of nozzles
0.4, 0.8, 1.0, 1.5, 2.0, 3.0,4.0,etc.

Insulation cover

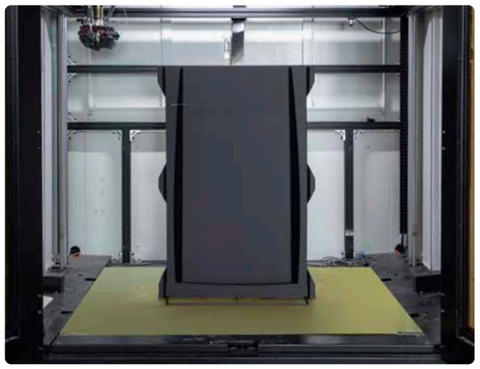
3D printer insulation cover Thermal insulation, constant temperature printing.

Suction and drying machine

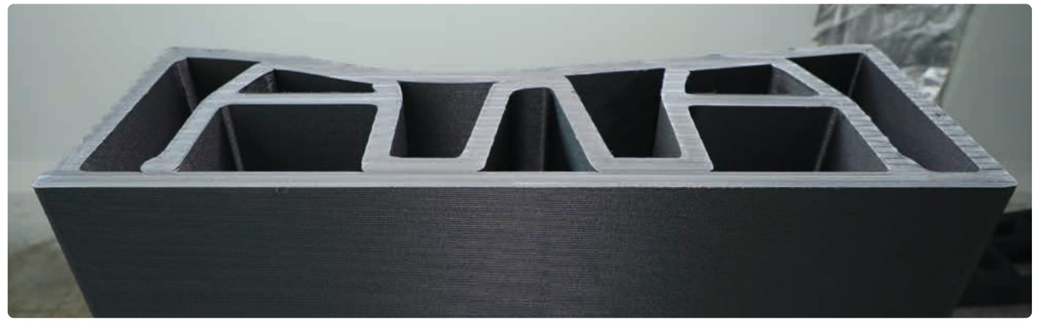
Integrating material suction and drying functions, it can dry materials more efficiently and rapidly, thereby improving the printing quality.

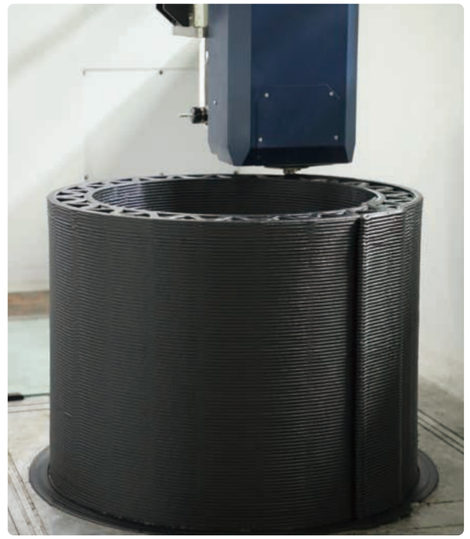
Industry
Applications

MOLD
MANUFACTURING

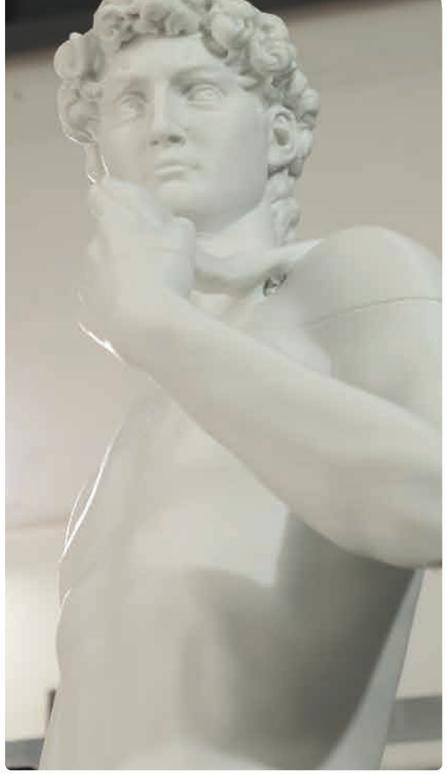


PELLETS
CONSUMABLES

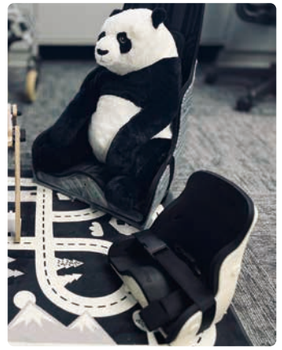




SCULPTURE
ART

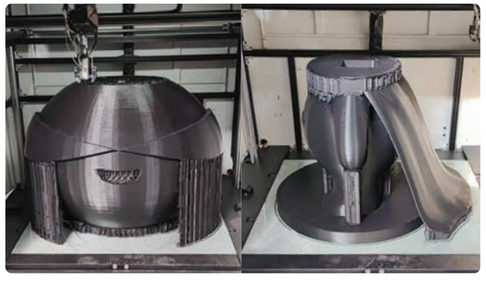


FURNITURE
ART



ART
& DESIGN

LANDSCAPE
DESIGN



CUSTOMIZED
CERVICAL PILLOWS & CUSHION & SHOES

LIVING
BATHROOM

EDUCATION
AND RESEARCH