PASSENGERS

+30%

OVER 20,000,000 IN 2013
MIDWAY PASSENGERS
OVER 20,000,000 IN 2013

SCHIPHOL PASSENGERS
OVER 52,569,200 IN 2013
MIDWAY GROWING OPPORTUNITIES

MULTI MODAL PUBLIC TRANSPORT

CONVENIENT LOCATION

FAST TRANSFER

LESS HASSLE THAN O’HARE AIRPORT
HARD CONDITIONS
INFRASTRUCTURE

VS

USE OF FREE SPACE
SOFT CONDITIONS
Less than high school
High school or equivalent
Less than 1 year of college
1 or more years of college
Associate degree
Bachelor’s degree
Master’s degree
Professional school degree
Doctorate degree

Midway surrounding area
Chicago Average
303,932 people in Chicago are unemployed.
EDUCATIONAL LEVEL

- Less than high school: 19%
- High school or equivalent: 13%
- Less than 1 year of college: 3%
- 1 or more years of college: 11%
- Associate degree: 14%
- Bachelor's degree: 9%
- Master's degree: 9%
- Professional school degree: 5%
- Doctorate degree: 8%

Midway surrounding area

Chicago Average
“If you look at the aggregate spending, about 60 to 65 percent comes from local property taxes,”

Ben Schwarm


“Taft Elementary School spent $7,023 in operating costs per student in 2010”

“Rondout Elementary School spent $24,244 in operating costs per student in 2010”

Chicago will be the site of a digital manufacturing institute backed by $70 million in federal money and another $250 million in private and other government funding.


SKILLFORCE
FEDERAL AND GOVERNMENTAL INVESTMENT ADVANCED MANUFACTURE

We need to "beat other countries in the race for the next wave of high-tech manufacturing jobs"

Obama - State of the Union, 2014

STEM related jobs are rising, but there is a lack of skilled workforce

We need to "beat other countries in the race for the next wave of high-tech manufacturing jobs"
SCHOOL COLLABORATION MODEL

Workshop
- FABLAB
- ROBOTICS
- AUTOMOTIVE
- PROCESS MANAGEMENT

Education
- SOFTWARE
- PROCESSING
- PROGRAMMING

Business

Start ups
- SOFTWARE
- HARDWARE
- MANUFACTURING
INSTITUTE FOR THE EDUCATION OF ADVANCED MANUFACTURE
CORE MANUFACTURE
Persona 1

Teacher (vocational)

Description:
Teacher dealing with students of different ages in the same classes. Working in small groups on theoretical education focused on computer/software engineering.

Transport:
car or PT

Workflow:
entering the building teachers entrance -> (administrative work) -> change clothes -> workshop or lecture -> fresh up -> changing clothes -> office work/meeting at flexible workspaces -> going home
- Office space (flexible) near workshop 6m2 pp
- Teaching room (college)
- Workshop space (for students)
- Small meeting rooms with students
- Teachers dressing rooms with lockers

Persona 2 (how many)

Teacher (theory/software)

Description:
Teacher dealing with students of different ages in the same classes. Working in regular groups on theoretical education focused on computer/software engineering.

Transport:
Car or rapid bus Transit South-north or Lime line

Workflow:
entering the building teachers entrance -> (administrative work) -> preparation class -> seminar/lecture/presentation -> office work/meeting at flexible workspaces -> going home
- Office space (flexible) near workshop 6m2 pp
- Teaching room (college)
- Workshop space (for students)
- Small meeting rooms with students

Persona 3

Starting student "young" (workshop/manufacturing training)

Description:
Possibly high school dropout, or ruined by school system, or practical work enthusiast. Needs training in various areas related to advanced manufacturing and working in workshops, manufacturing processes/software management.

Transport:
rapid bus Transit South-north or Lime line

Workflow:
Entering the building through main entrance -> theory training/lectures -> change of clothes -> workshop training -> change clothes -> sports -> going home
- Flexible inspiring study space/office space
- Student dressing rooms
- Meeting rooms (large)
- Sports facilities (indoor)
- Public/private spots
- Outdoor space

Persona 4

Advanced student - age 20 - 60 (Process management and working skills)

Description:
Student with acquired skills to operate certain processes on small scale manufacturing/fablab. Able to work in the workshop for possible assignments in collaboration with entrepreneurs.

Transport:
rapid bus Transit South-north or Lime line

Workflow:
Entering the building through main entrance -> change clothes -> work in machine workshop for entrepreneurs -> change clothes -> lectures or studying -> going home
- Flexible inspiring study space related to entrepreneurs
- Student dressing rooms
- Meeting rooms (small)
- Sports facilities (indoor)
- Public/private spots
- Outdoor space

Persona 5

Entrepreneur age: YUP (Development/software/robotics/fablab)

Description:
Professional, in collaboration with the institute and other companies. Working on models, prototypes and software innovations. Can make use of institute's facilities, in return teaching students.

Transport:
Lime line or rapid bus transit or car

Workflow:
Entering building through main entrance business first -> meetings or collaborative work -> teaching in workshop advanced students / lectures/seminars -> work going home
- Flexible private office space
- Storage space
- Access to machine workshop
- Shared office equipment
- Formal/informal entrance
- Meeting space (collaborative)
- Reception space for clients
SITE
BUILDING
- entrance/expo space
- reception desk
- foyer
- auditorium public
- public restaurant
- public toilets
- public coffee
- informal meeting
- formal meeting space
- Office toilets
- Office coffee

- entrance/expo space
- auditorium public
- public restaurant
- public toilets
- Office coffee

- metro arriving area
- connection offices
- auditorium public
- manufacture CNC
- manufacture 3D
- manufacture ROBOT
- server
- support
- educatorium
- start up spaces
- entrance

- foyer
- reception desk
- public coffee
- informal meeting
- formal meeting space
- meeting space
- public sitting area (outside)
- metro arriving area
- connection offices

- auditorium public
- informal meeting
- entrance
- restaurant/coffee bar
- toilets
- server
- support
- manufacture CNC
- manufacture 3D
- manufacture ROBOT
- educatorium
- educasettingspace
- educ potentially
- educ lecture rooms 4x
- start up spaces
- start up assembly spaces
- start up toilets
- start up entrances
- start up parking
- public parking
office space
JUNQ yard
foyer
arrival
informal meeting
formal meeting
auditorium
restaurant
public
FIRE FREE ZONES & ESCAPE ROUTES
FIRE FREE ZONES & ESCAPE ROUTES
FIRE FREE ZONES & ESCAPE ROUTES
STRUCTURE conclusion for project

- Max Cantilever: 40 meter
- Max distance trusses: 32 meter
- Symmetrical trusses: -
- Symmetrical cantilever: -
- Assymetrical core: 3 meter
- Truss height: 10 meter
FACADE / INTERIOR
INSPIRATION MATERIALISATION JUNQ SPACE
INSPIRATION MATERIALISATION PLAZA - CORE - BUNKER
INSPIRATION MATERIALISATION CORE
FACADE JUNQ SPACE REFERENCES ROTATIONAL LOUFERS
SUSTAINABILITY
SUSTAINABLE INTEGRATION FACADE CORRIDOR

Facade principle
- Winter garden possibility
- Single Facade
- Vertical louvers (Wrapped W/S/E Facade)

Extra’s
- Fire escape route
- Spatial qualities
In summer, the warm orientation is preferred, while in winter, cold orientations are more comfortable. Radiant heat in the winter garden helps to reduce the need for floor heating. The optimum condition is achieved with less cooling needed in summer and less floor heating needed in winter. The transmissive nature of the materials helps in efficient heat transfer.
Roof principle

3 Segments:
- Roof lights (facing north)
- Solar panels PVT (facing South)
- Green roof (in between roof lights)
SUSTAINABLE INTEGRATION HEATING/COOLING

SUMMER cooling
- local cooling units
- floor cooling
- sun radiation limited by ground/soil around ground floor to reduce cooling load

WINTER heating
- local heating units
- floor heating
- residual heat
- concrete mass on ground floor keeps heat in during winter

Machine heat/energy

Car parking basement floor = ground heat exchanger

Heat Pump

Geothermal

Local
SUSTAINABLE INTEGRATION VENTILATION

SUMMER ventilation
- local induction units
- floor cooling

WINTER ventilation
- local induction heating units
- floor heating
- residual heat

Machine heat/energy
- heat pump air treatment
- clean shadow air
- car parking basement floor = ground heat exchanger
- Heat Pump
- Geothermal Local