TAASVÄÄRTUSTAMINE

Lammutusjäätmete taaskasutamise mõju ruumile

KEITI LIGE

Juhendajad: Katrin Koov ja Kadri Klemeneti

KAHANEMINE
KASVAMINE

KASVAMINE



Kiviõli 1957. Allikas: https://www.arcgis.com/apps/MapJournal

Eestis hoonete ehitamine, materjalid, ülalpidamine ja lammutamine tarbib üle **50% CO_2-heitmetest**

allikas: LIGINULL näitus

KAHANEMINE



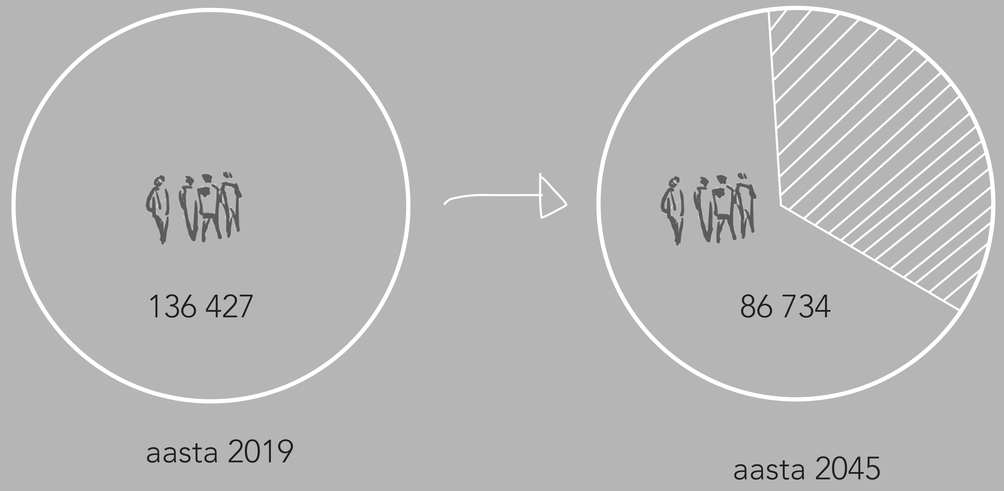




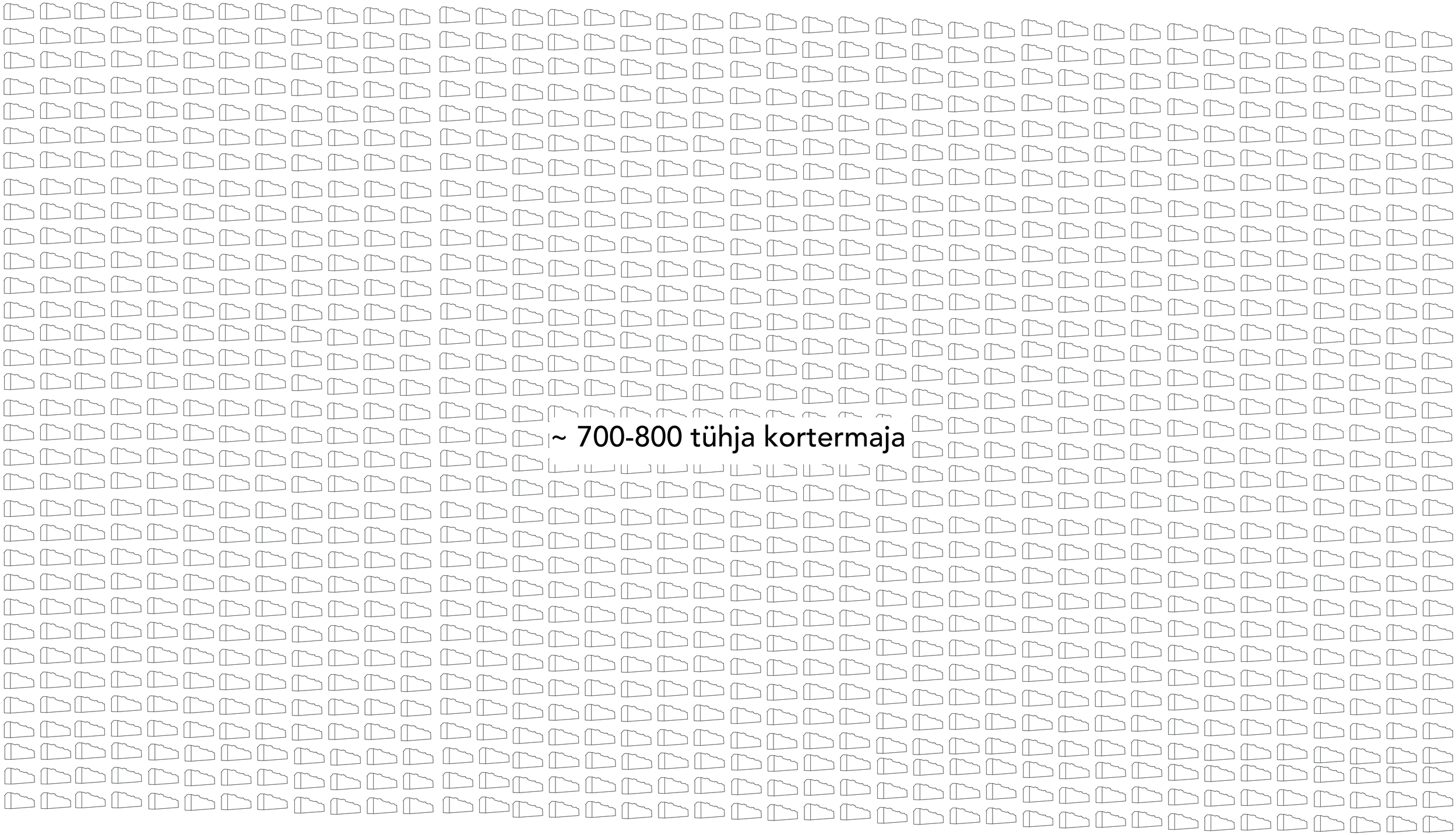


IDA-VIRUMAA rahvaarv aastal 2045





allikas: Statistikaamet


~ 700-800 tühja kortermaja

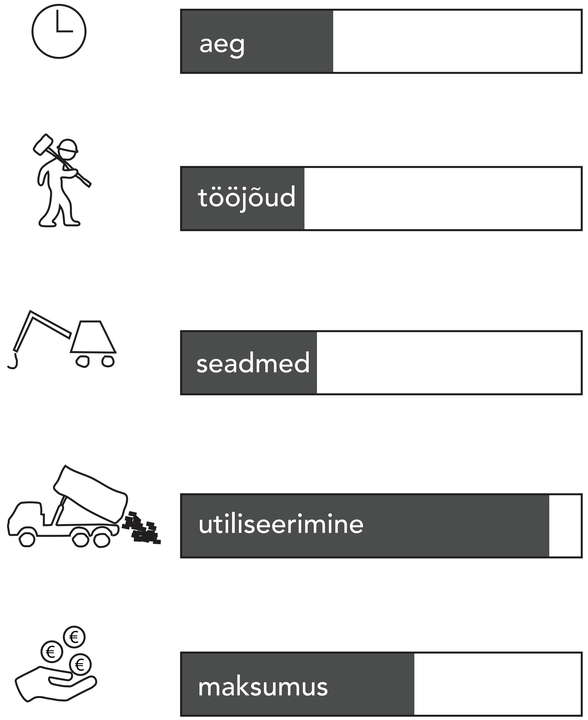
LAMMUTAMINE

LAMMUTAMINE KUI TÖÖRIIST

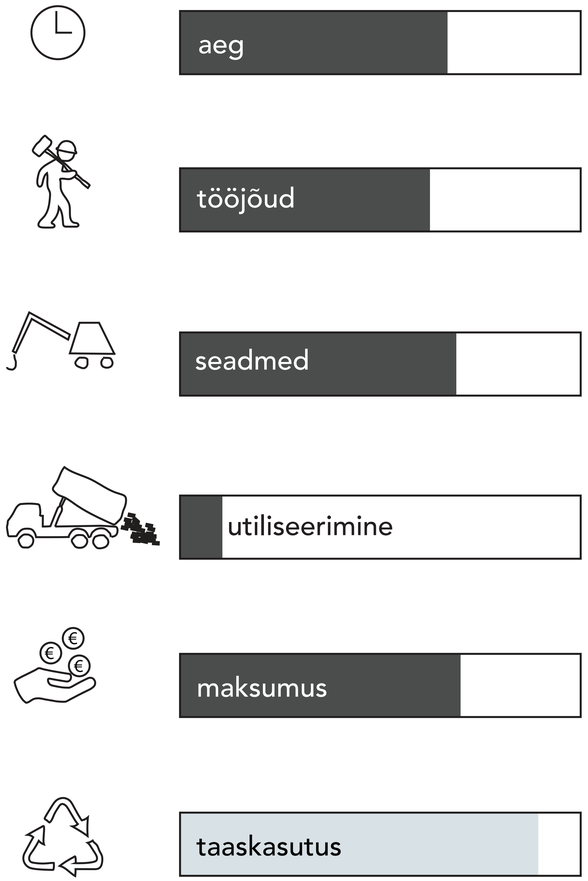
- võtmetegevuseks linnade kahandamisel
- sealse elukvaliteedi tõstmisel
- kinnisvara turuväärtuse tasakaalustamisel

DEMONTEERIMINE VS LAMMUTAMINE

LAMMUTAMINE



DEMONTEERIMINE



JÄÄKVÄÄRTUS

LAMMUTAMINE



maksumus



jääkväärtus

DEMONTEERIMINE



maksumus



jääkväärtus



lõplik maksumus



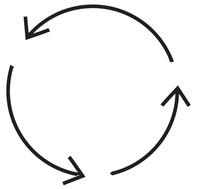
lõplik maksumus

LINERAARSELT MAJANDUSELT ÜLEMINEK RINGMAJANDUSELE

LINERAANE MAJANDUS

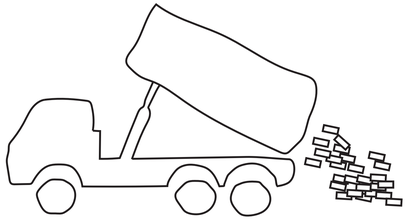


RINGMAJANDUS

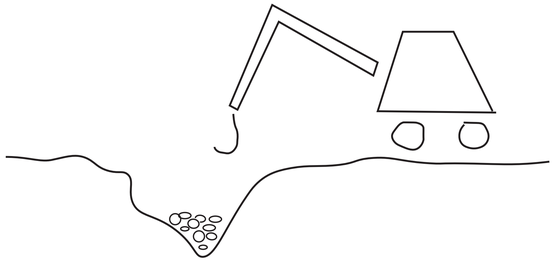


RESSURSSIDE ÜMBERMÕTESTAMINE

JÄÄTMED



TOORMATERJALI KAEVAMINE



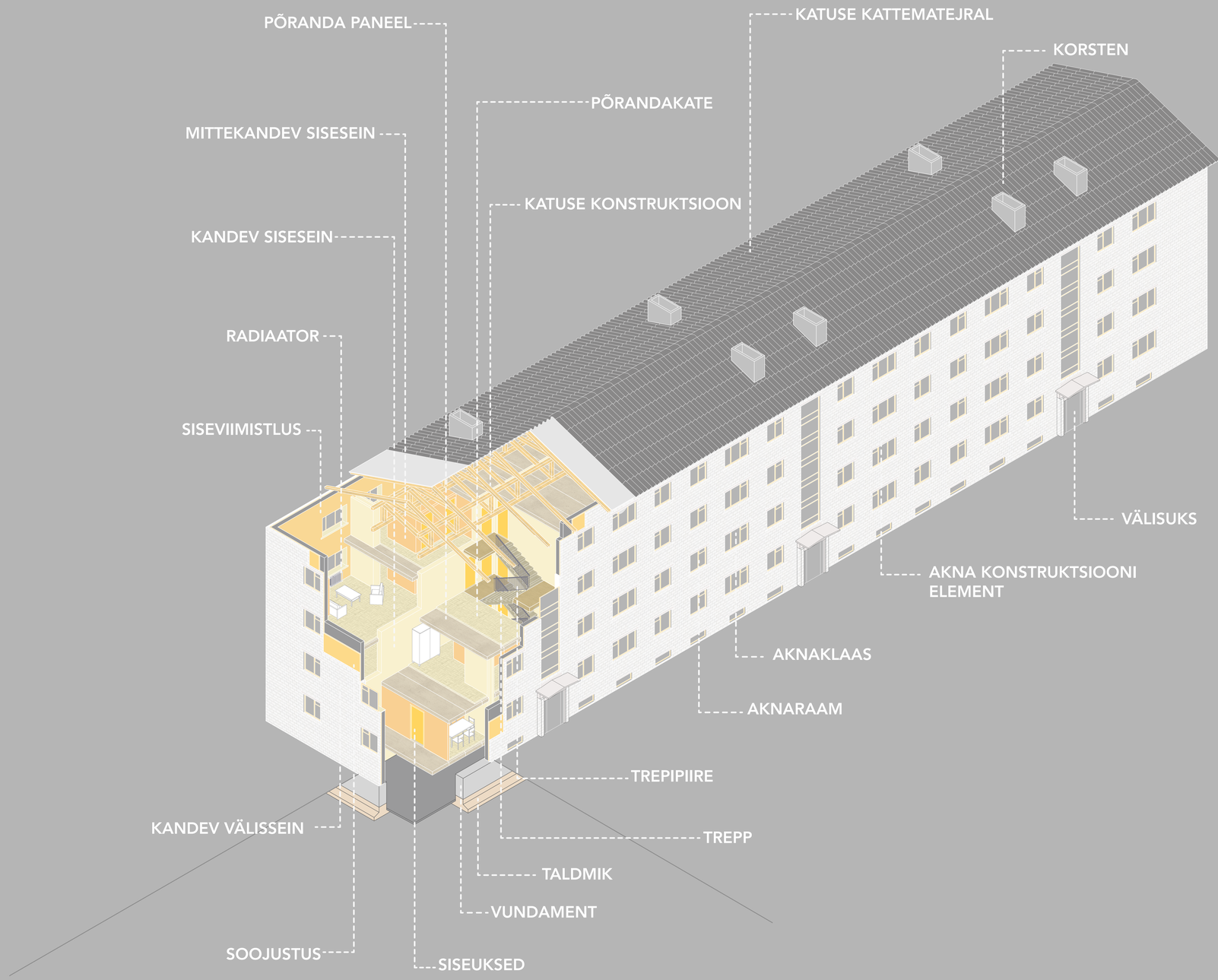
MATERJAL

IDA-VIRUMAA



PEAMISED TÜHJAKS JÄÄNUD KORTERMAJAD

HRUŠTŠOVKA SEERIA 1-317



SUUR KOGUS
VÄHEM VÄÄRTUSLIK

SILIKAATTELLIS

Koostis

kvartsliiv 92-95%
lubi 5-8%

Mõõdud

250x120x65 mm



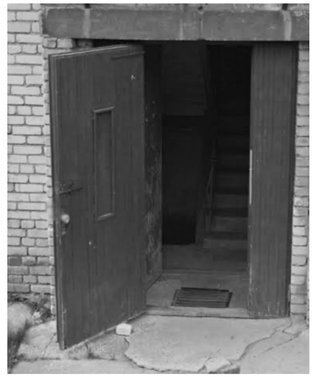
BETOON

Koostis

Portlandtsement 15%
Liiv, kruus 75%
Vesi 10%



VÄIKE KOGUS
VÄÄRTUSLIKUM



UKSED



AKNAD



PUITKONSTRUKTSIOON

KLAAS



SISEUKSED



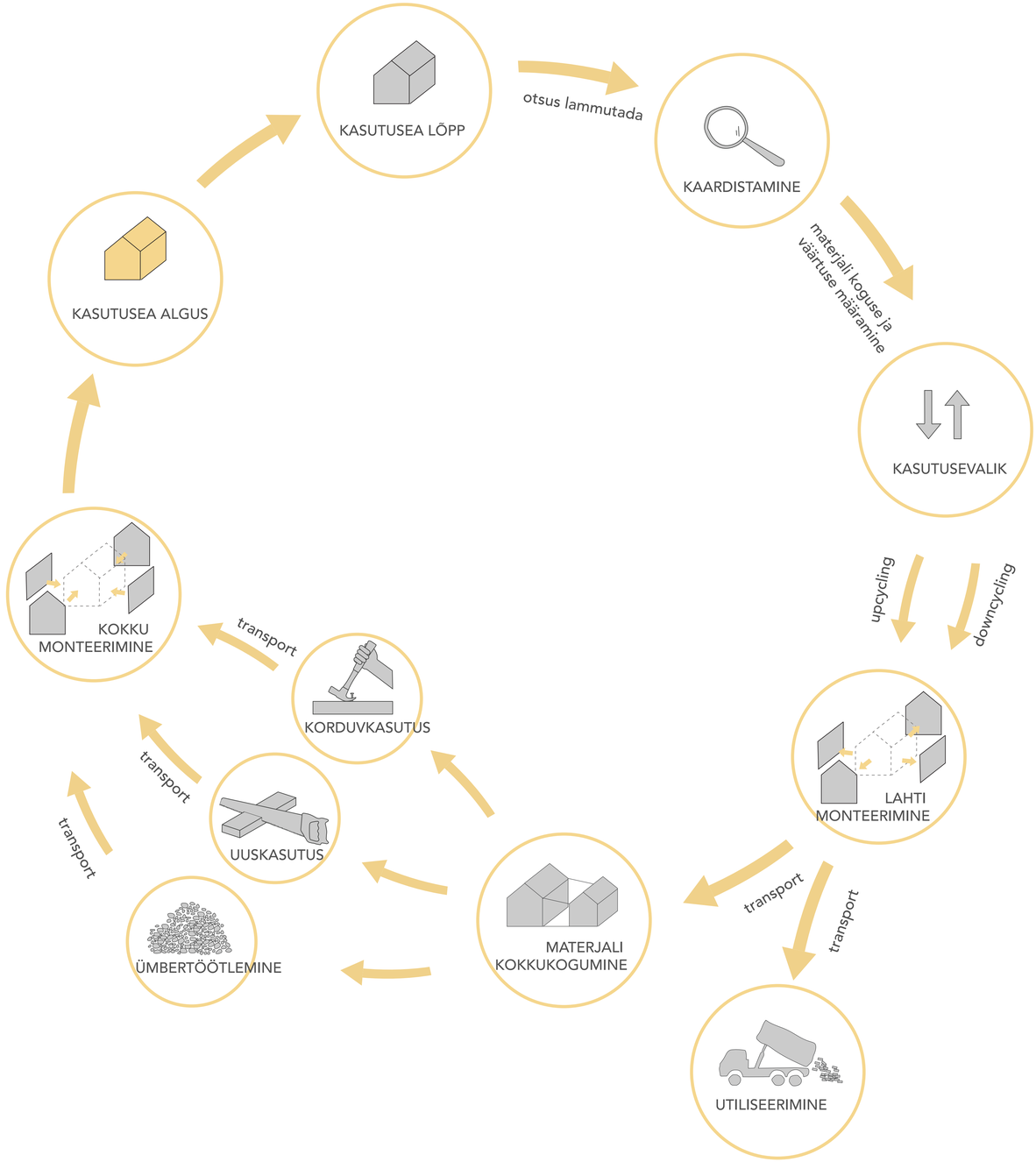
METALLPIIRE



MALMRADIAATORID

TAASVÄÄRTUSTAMINE

MATERJALI RINGLUS



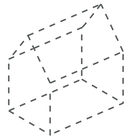
MATERJALI *UPCYCLE* STRATEEGIAD

KK
KORDUVKASUTUS

UK
UUSKASUTUS

ÜT
ÜMBERTÖÖTLEMINE

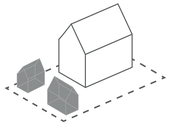
MATERJALI TAASKASUTUSE SKAALAD



SUUR SKAALA
hoone ehitus



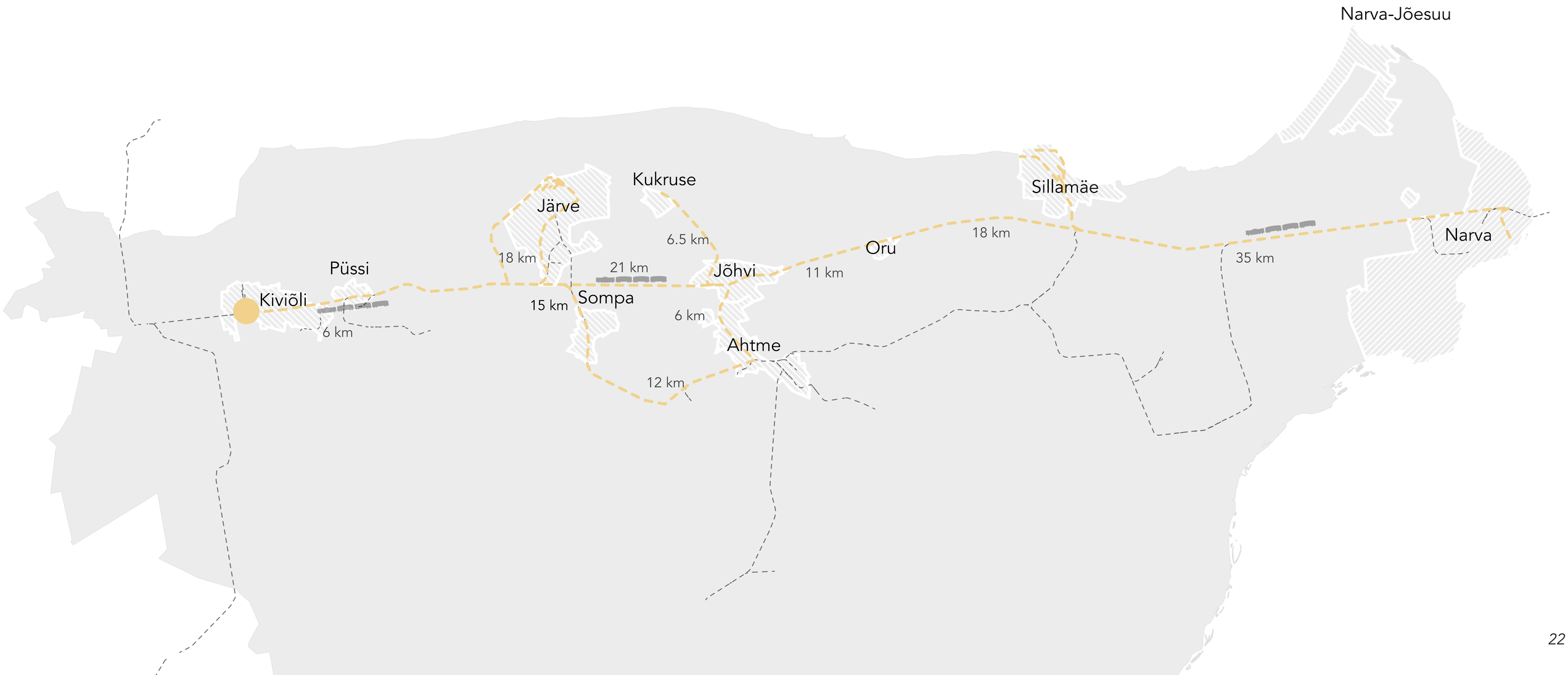
KIVIÕLI AVALIK RUUM
linnaruumi arendamine



KIVIÕLI PRIVAATNE RUUM
iseehitamise traditsiooni jätkamine

MATERJALI KOKKUKOGUMINE

Olemasolev raudtee



KIVIÕLI

KIVIÕLI



KIVIÕLI
KEEMIATEHAS



KIVIÕLI KEEMIATEHAS



Allikas: Alexela fotokogu.

MATERJALIKESKUS

KIVIÕLI
KEEMIATEHAS



TÜHJAD HOONED



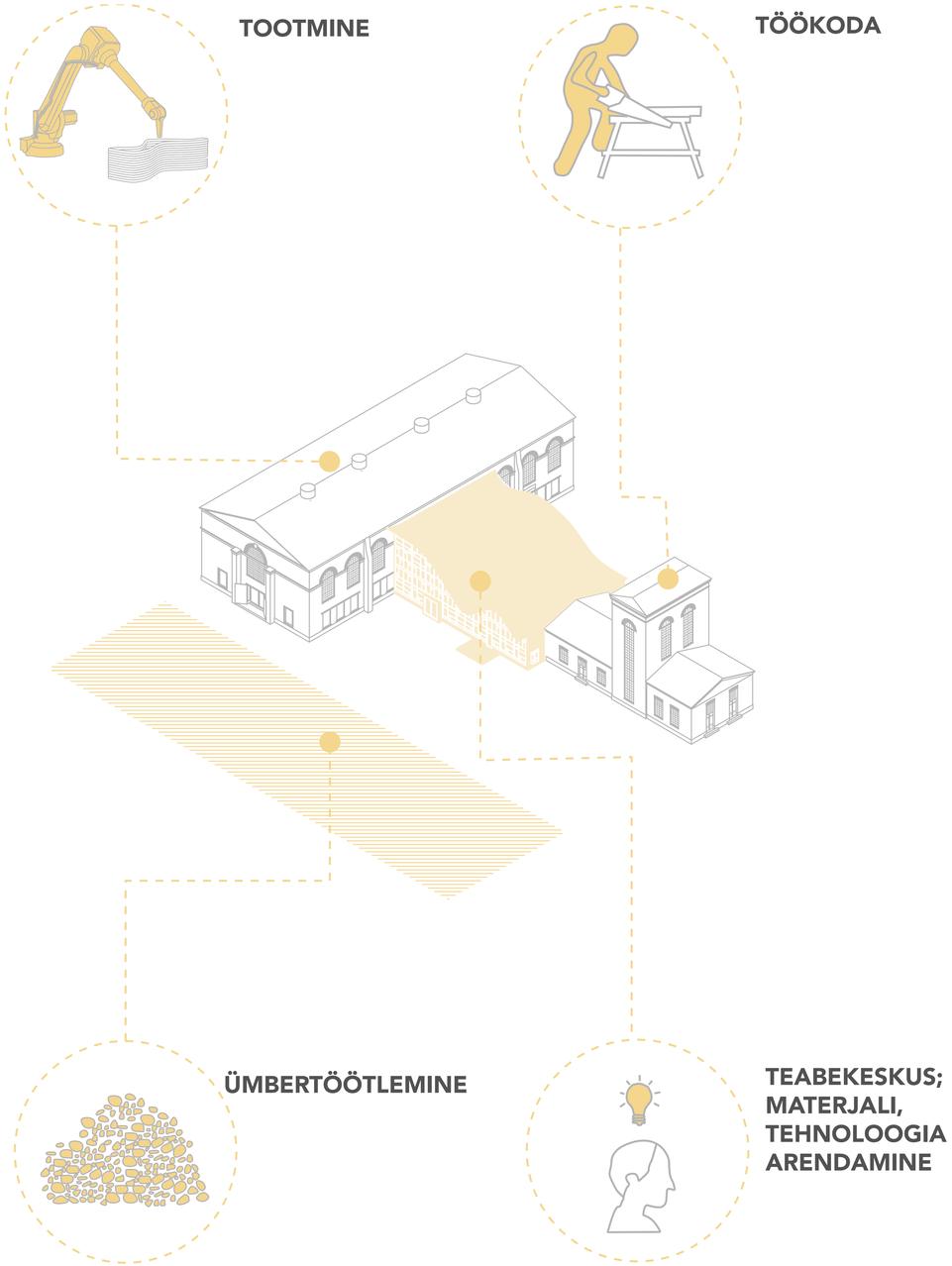
Kukersoli hoone



Destilastioonihoone

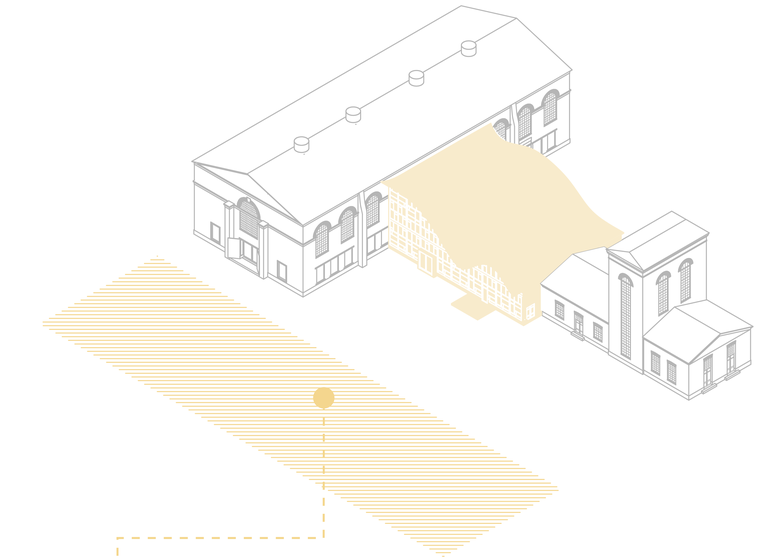
MATERJALIKESKUS

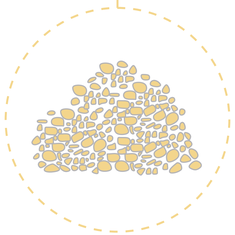
funktsioonid



MATERJALIKESKUS

ümbertöötelmine

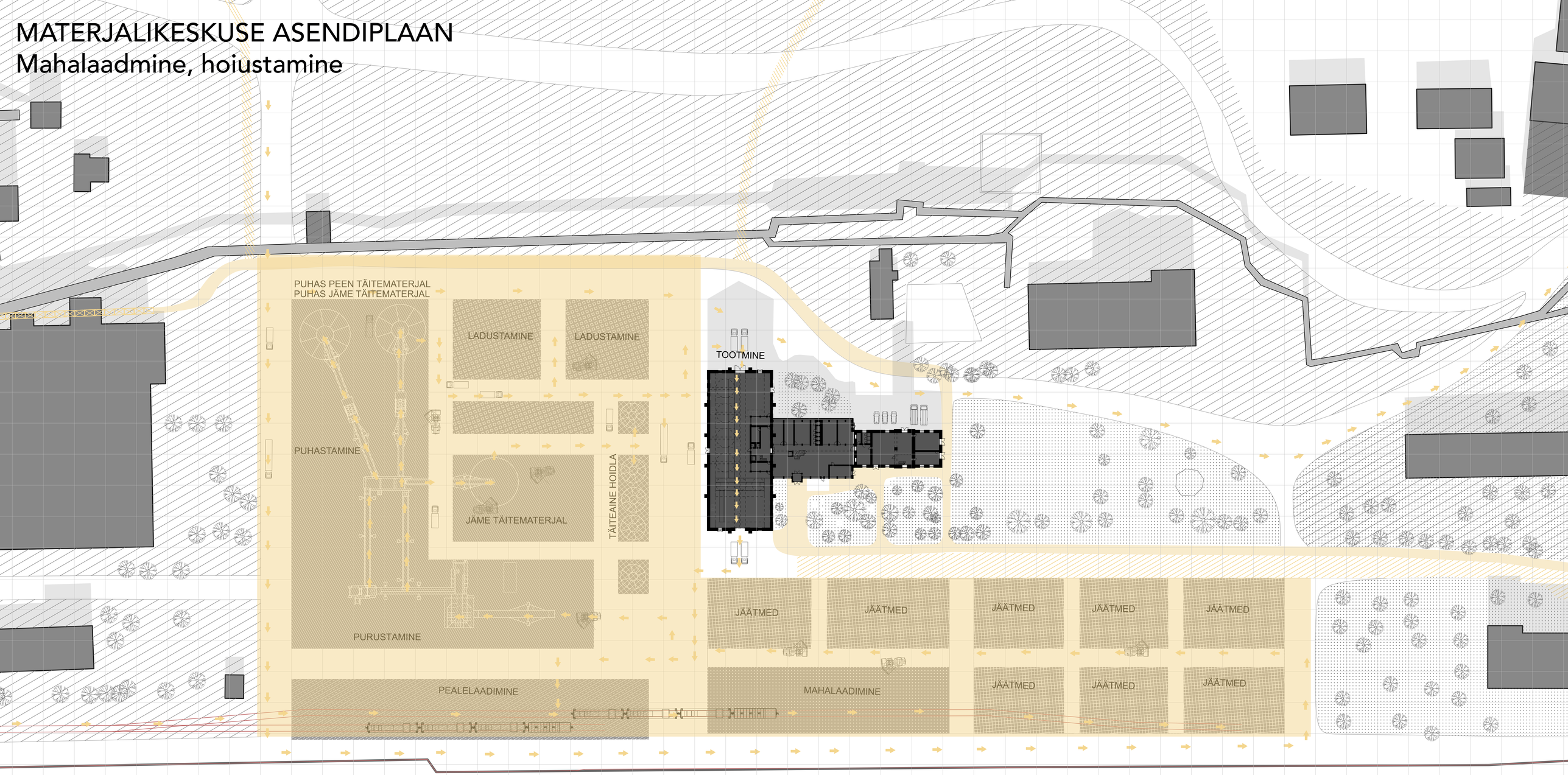




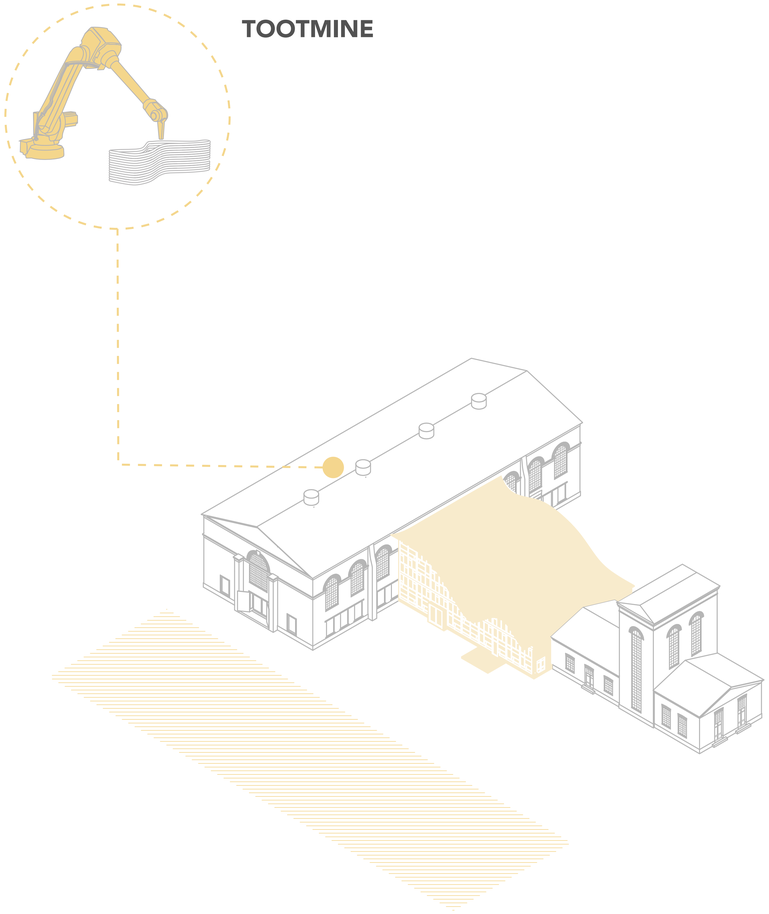
ÜMBERTÖÖTLEMINE

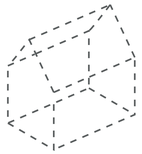
lammutusjäätmete
kogumine,
puhastamine,
lõikamine,
purustamine

MATERJALIKESKUSE ASENDIPLAAN
Mahalaadmine, hoiustamine



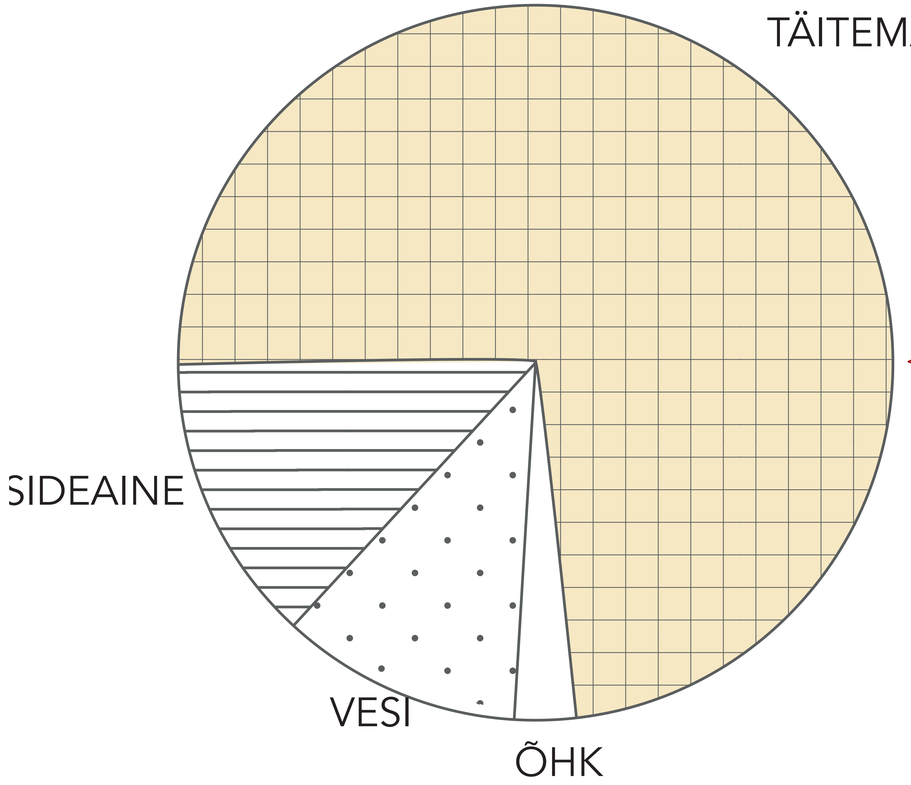
TOOTMINE





SUUR
SKAALA
hoone ehitus

MATERJAL
taaskasutatud betoon

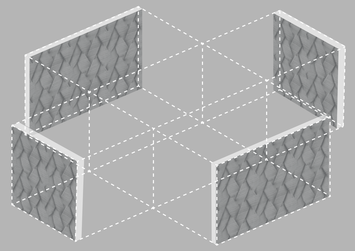


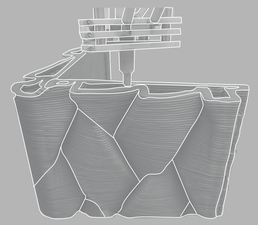
10%-100% asendamine ümbertöödeldud betooni ja silikaadi liivaga

Allikas: M. Solyman. (2005). Classification of Recycled Sands and their Applications as Fine Aggregates for Concrete and Bituminous Mixtures.

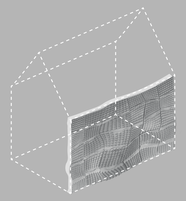
3D-PRINTIMISE TOOTMINE

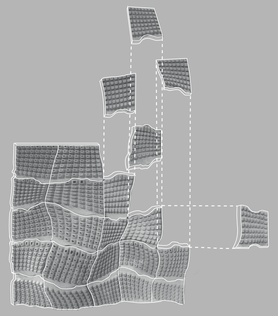
SEINAPANEELID



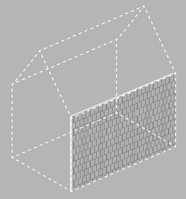


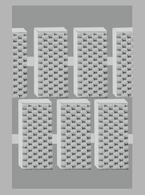
SEINAPLOKID



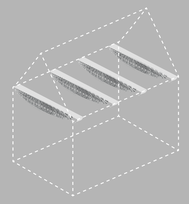


FASSAADI ELEMENDID



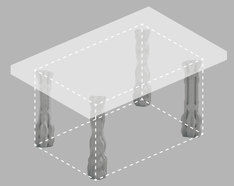


VAHELAE TALA



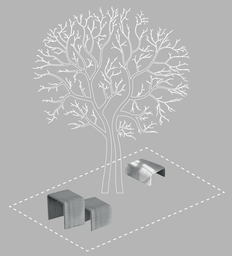


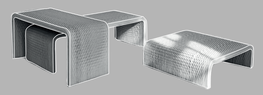
KONSTRUKTSIOONI POSTID



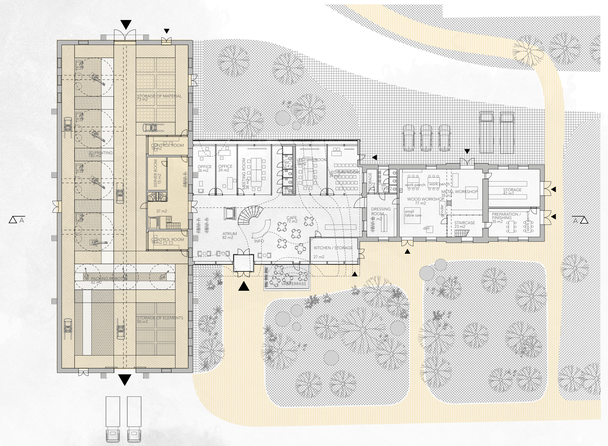


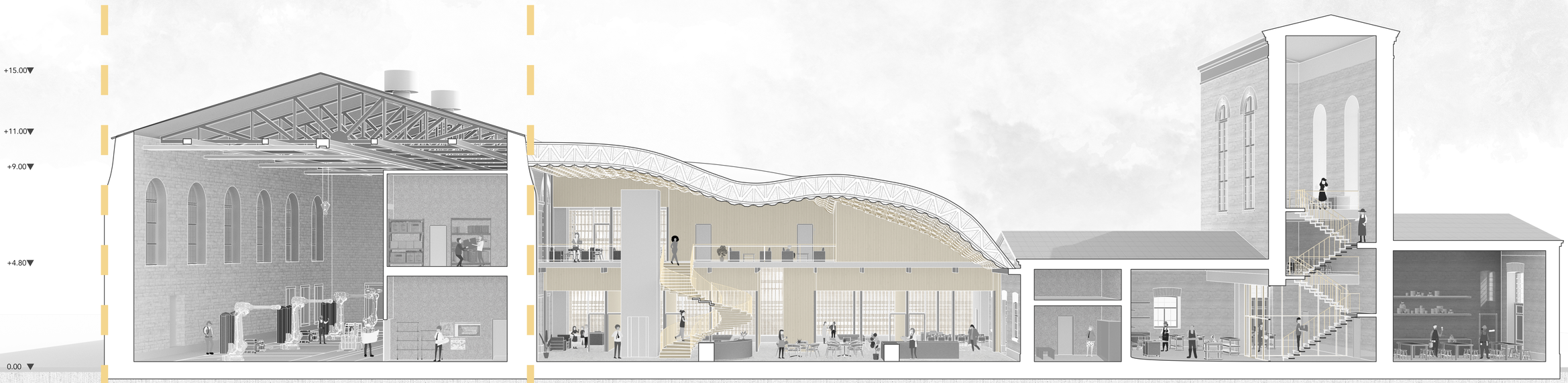
MÖÖBEL



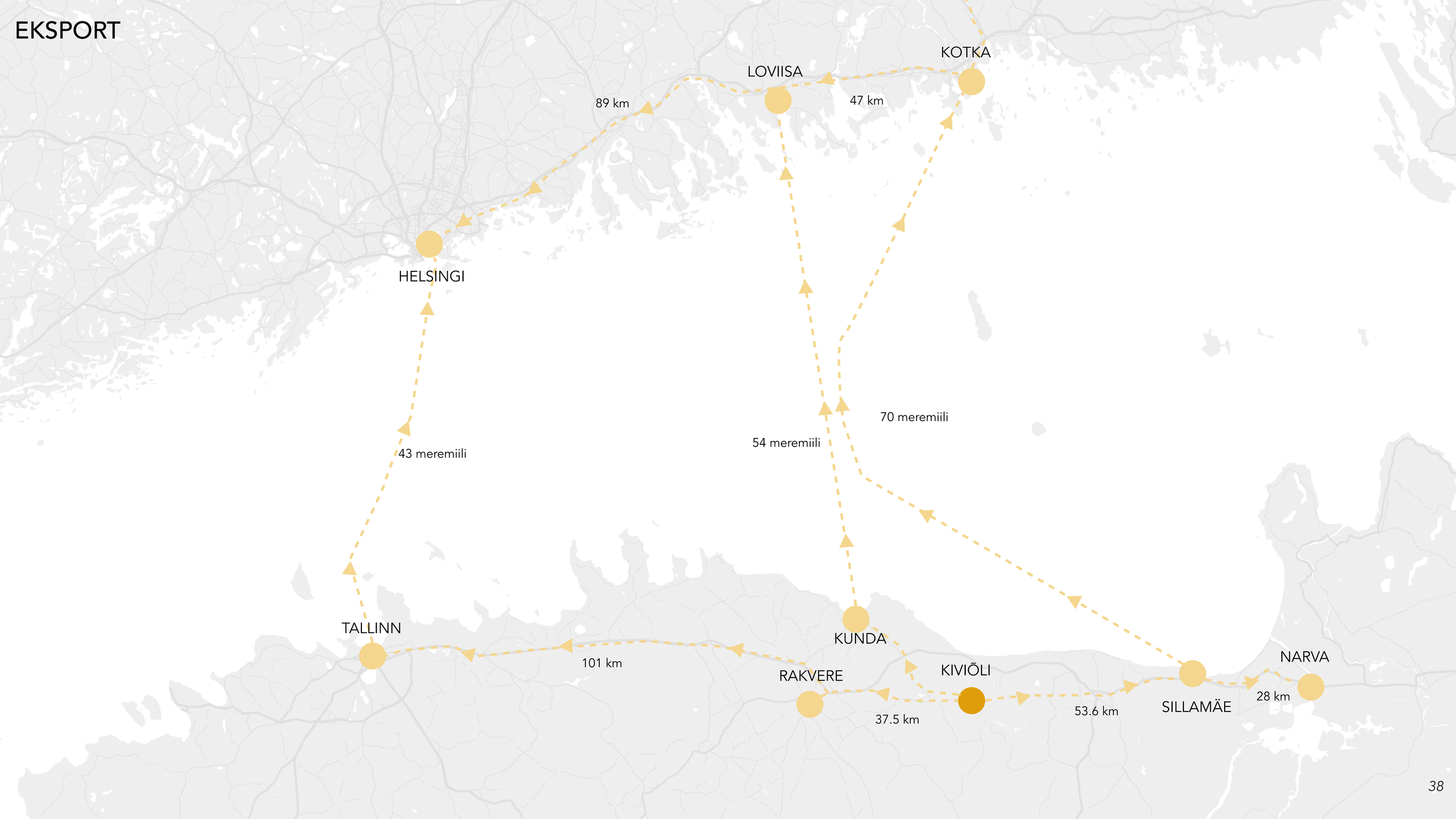


LÕIGE A-A
tootmine

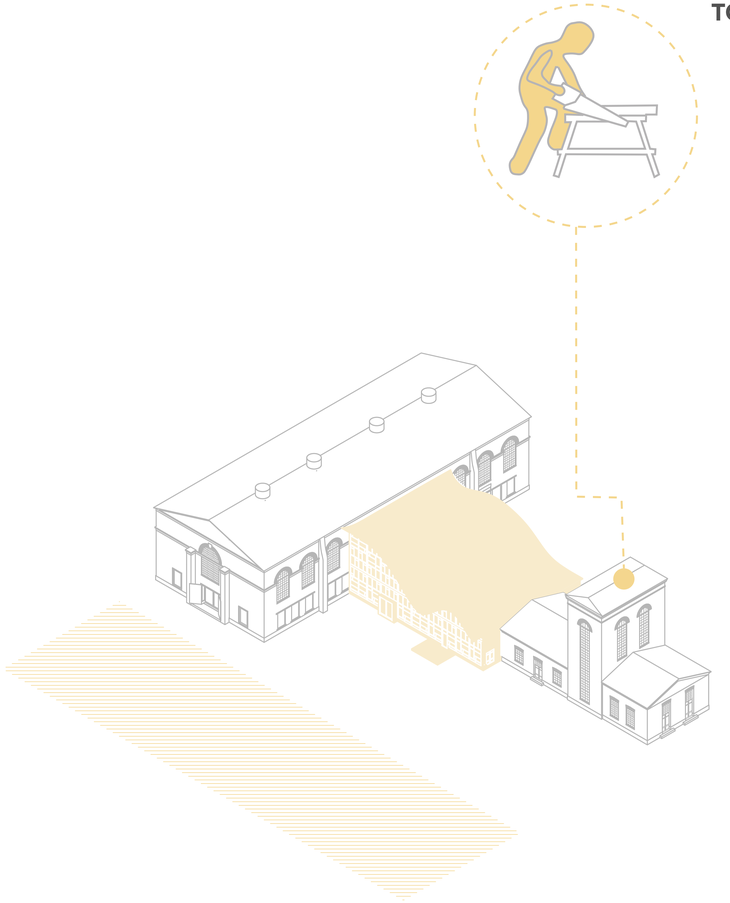




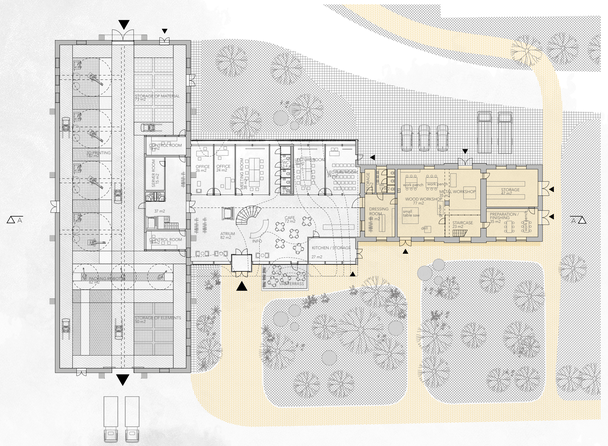
EKSPORT


KOTKA
LOVIISA
89 km
47 km
HELSINGI
43 meremiili
54 meremiili
70 meremiili
TALLINN
101 km
KUNDA
RAKVERE
KIVIÕLI
37.5 km
53.6 km
SILLAMÄE
NARVA
28 km

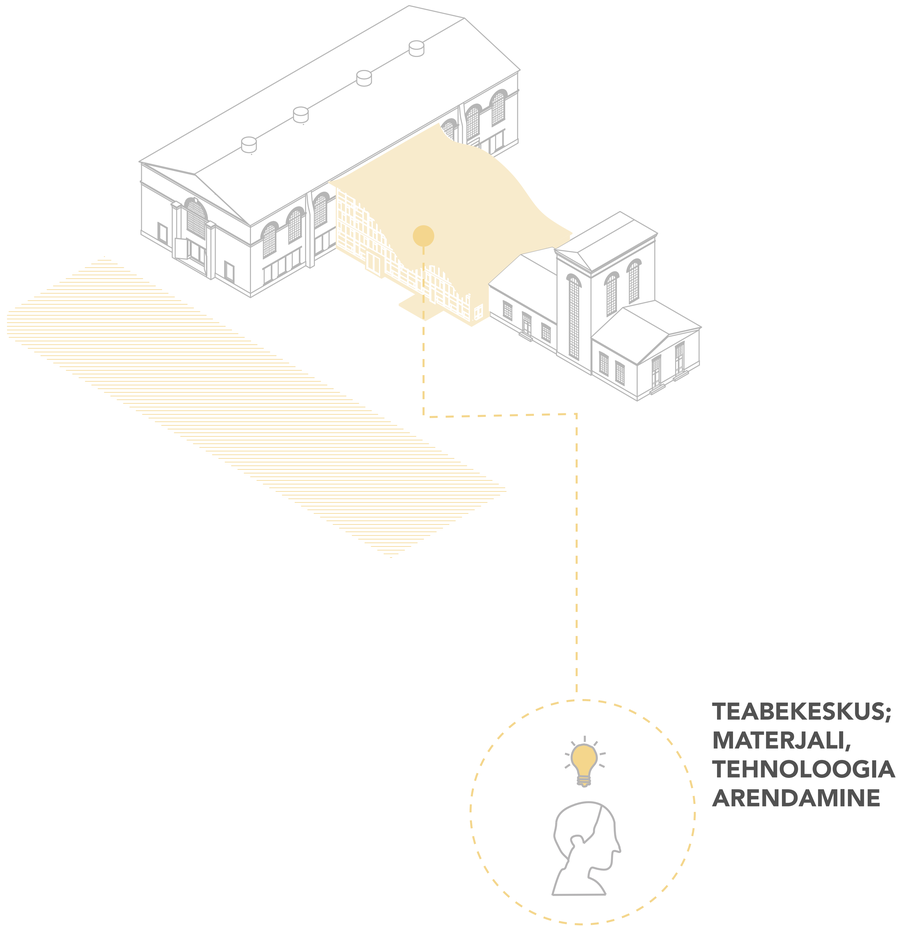
TÖÖKODA



LÕIGE A-A
töökoda

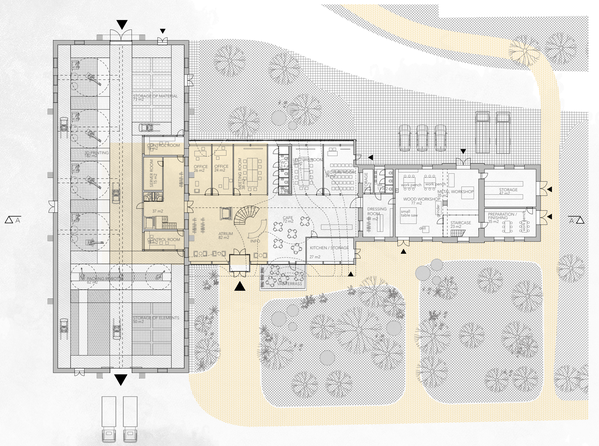


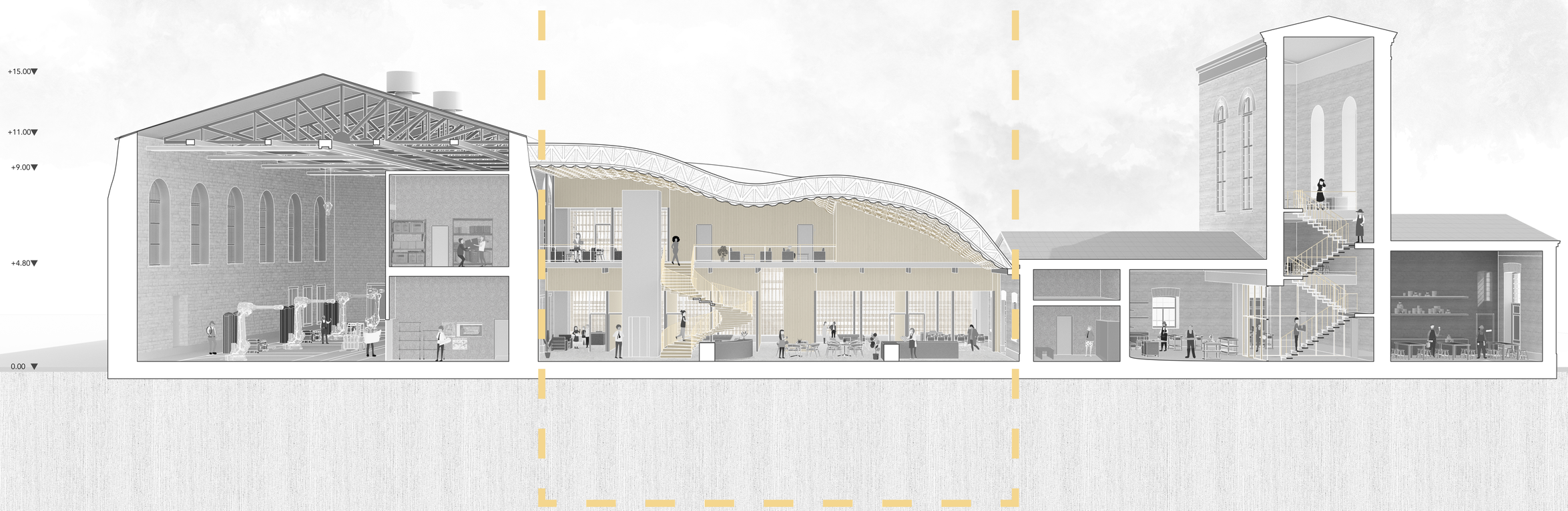




TEABEKESKUS;
MATERJALI,
TEHNOLOOGIA
ARENDAMINE

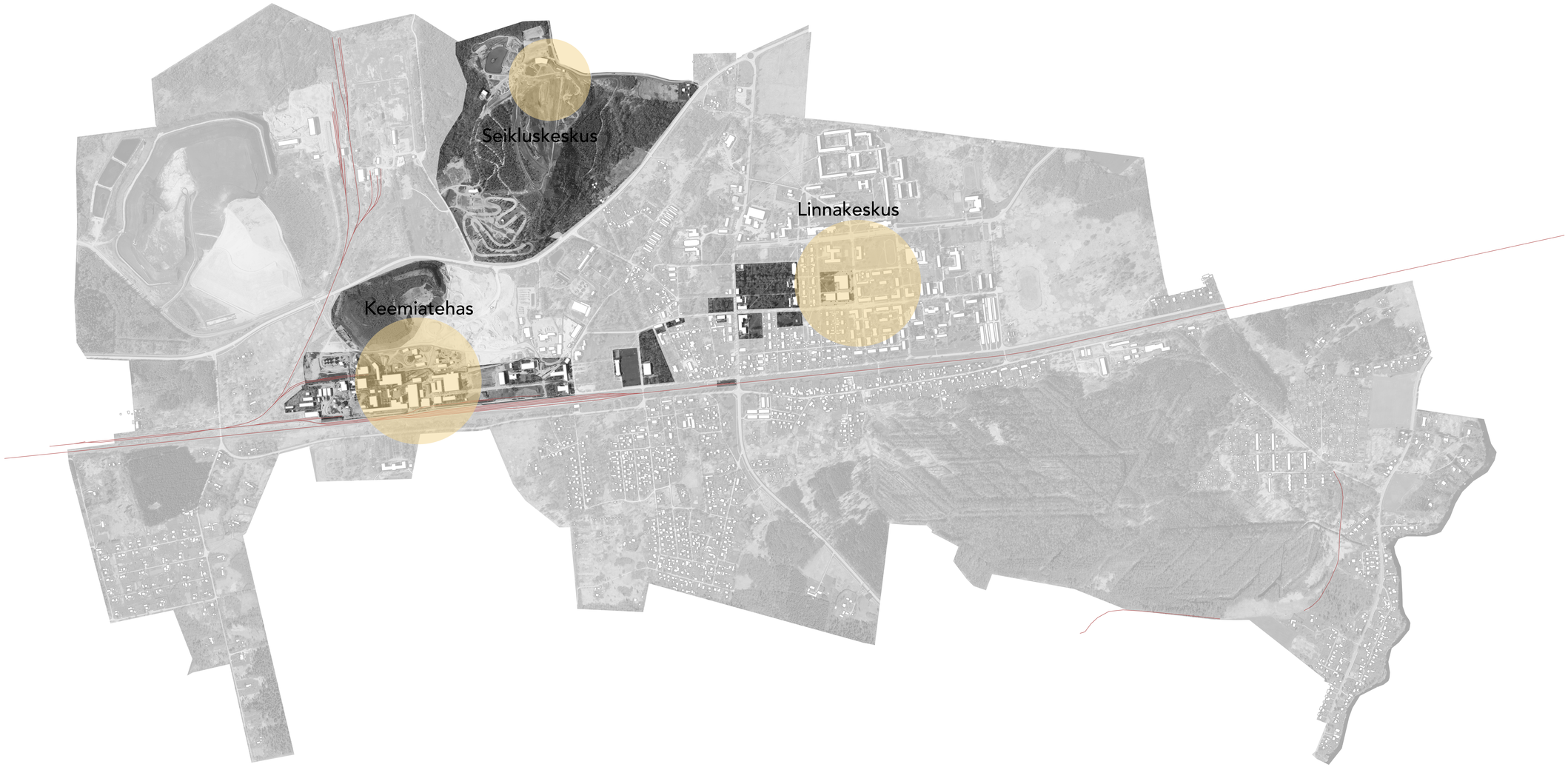
LÕIGE A-A
teabekeskus





KIVIÕLI AVALIK RUUM
linnaruumi arendamine

TÕMBEKESKUSED



ÜHENDUSRADA



TESTRADA



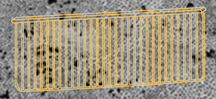
KÜLAPLATS



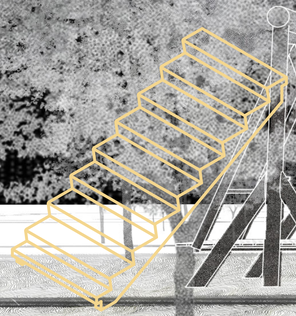
KÜLAPLATS

TAASKASUTATUD ELEMENDID

Piire



Trepp



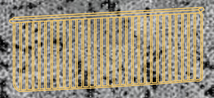
SKULPTUURIPARK



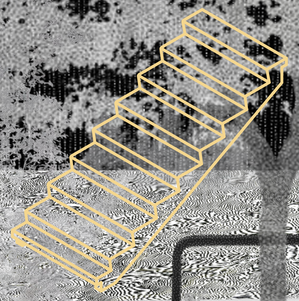
SKULPTUURIPARK

TAASKASUTATUD ELEMENDID

Piire



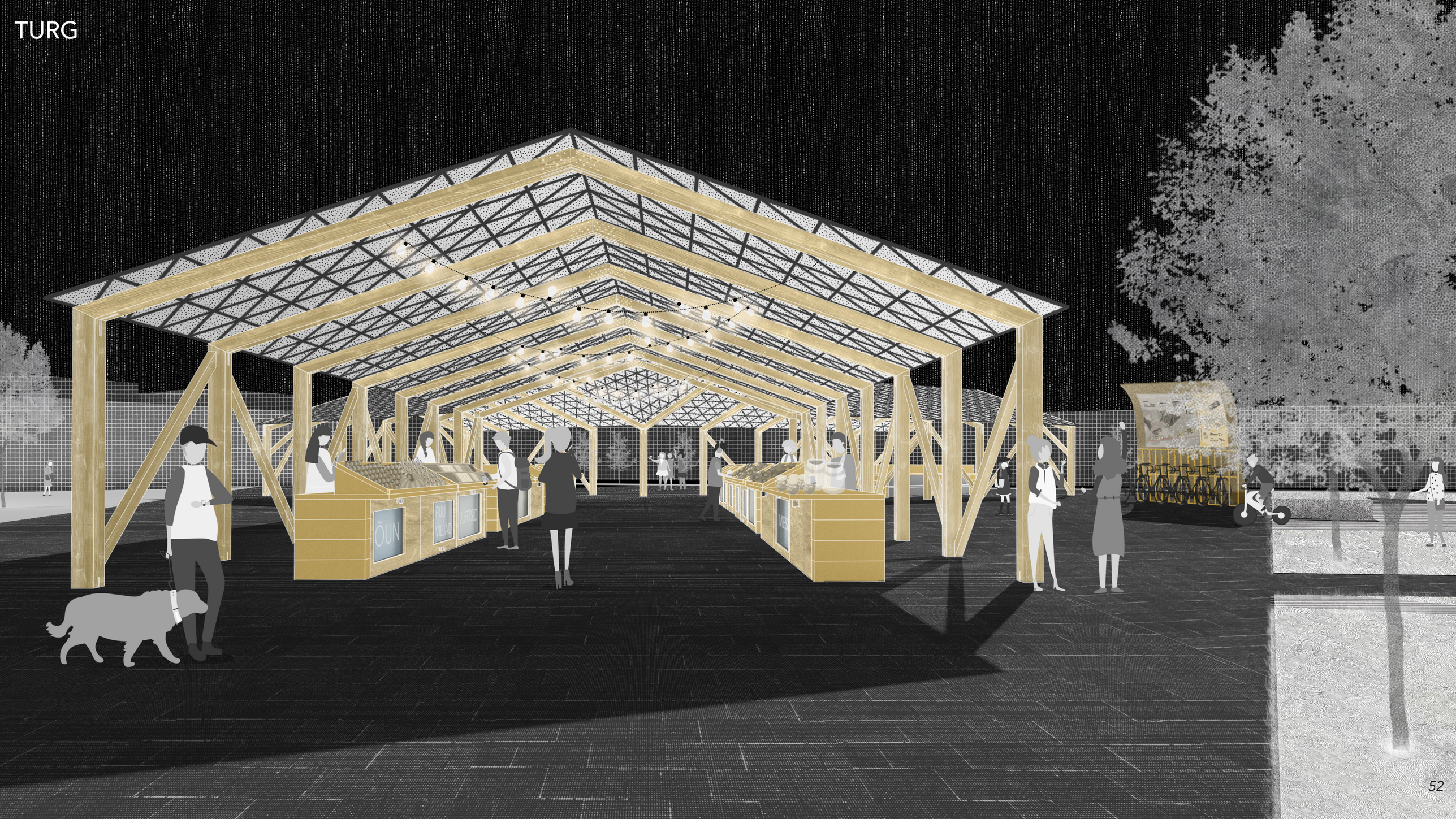
Trepp



TURG



TURG

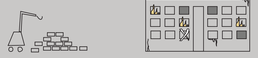


INFOTAHVEL

KIVIÕLI TESTRADA

LAMMUTUSJÄÄTMED KUI UUS RESSURSS

LAMMUTUSJÄÄTMED



Ida-Virumaal aastaks 2045 ligi 700-800 tühja kortermaja



MIKS MATERJALI TAASKASUTADA?

> Jäätmete utiliseerimine
Ehitus- ja lammutusjäätmed on ühed raskemad ja mahukamad jäätmevood. Euroopa Liidus moodustab see umbes 25–30% kõikidest tekkivatest jäätmetest. Kui vaadata Eesti olukorda, siis 2016. aastal toodeti 1.2 miljonit tonni ehitusjäätmeid.
(Eesti Statistika andmebaas, 2016)

> CO2 heitmete suurenemine
Eestis hoonete ehitamine, materjalid, ülalpidamine ja lammutamine tarbib üle 50% CO2-heitmetest.
(Liginull näitus, 2019)

>Tooraine otsalõppemine
Kui me ei suuda vähendada nende materjalide tarbimise vajadust, ei pruugi lähitulevikus meile looduslikest varadest enam piisata. OECD prognoosib, et 2060. aastaks kahekordistub meie vajadus liiva ja killustiku järele võrreldes 2017. aasta vajadusega.

MATERJALI VÄÄRTUSE TÕSTMINE STRATEEGIAD

KK
KORDUVKASUTUS

Materjali kasutamine sama funktsioonina. Materjalide töötlemine on minimaalne. Näiteks kerge puhastamine, lihvimine, naeltest puhastamine.

UK
UUSKASUTUS

Materjali algse funktsiooni eiramine. Materjalide lõikamine vastavalt vajadusele, millist suurust ja kuju on vaja.

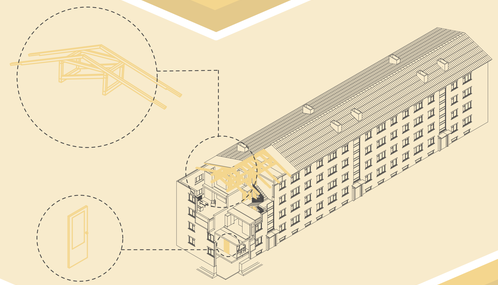
ÜK
ÜMBERTÖÖTLEMINE

Uue materjali tootmine.Materjalide purustamine ja uuesti kokkupanemine uute materjalidega.

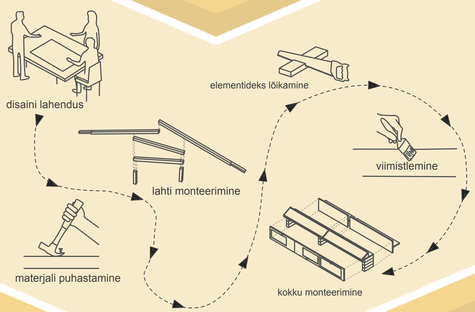


KESKVÄLJAK
TURG

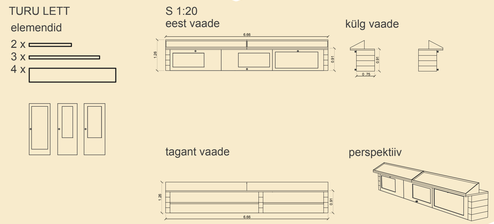
ALGMATERJAL



MATERJALI TÖÖTLEMINE



UUS MATERJALI KASUTUS




KIVIÕLI PRIVAATNE RUUM
iseehitamise traditsiooni
jätkamine

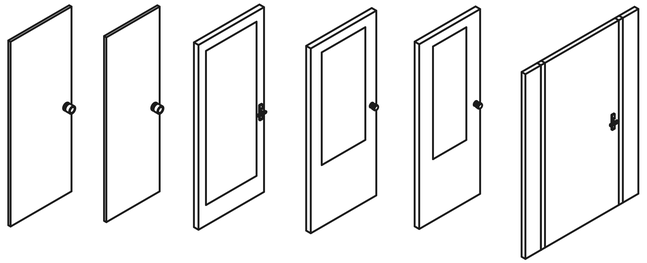


Foto: Maa-amet fotokogu

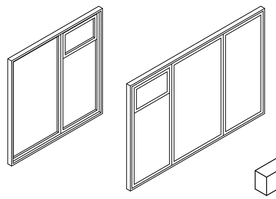
EHITUSELEMENDID

Taaskasutatud elemendid

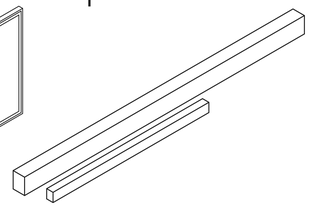
uksed



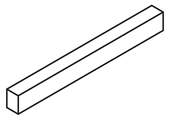
aknad



puit

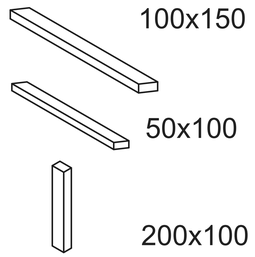


betoon sillus

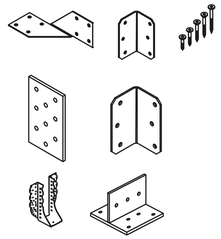


Uued elemendid

prussid



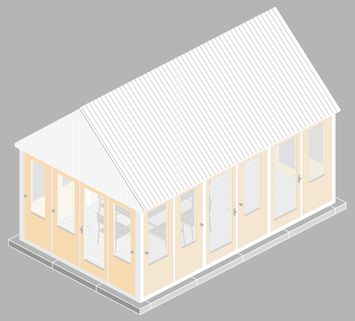
kinnitused



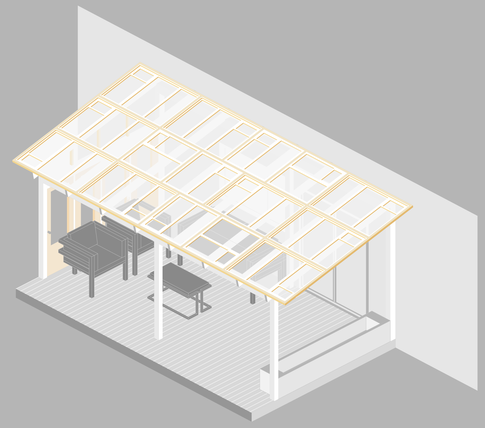
ABIHOONED



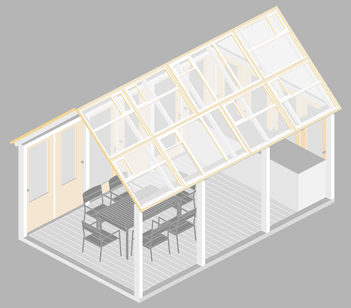
VARJUAALUNE



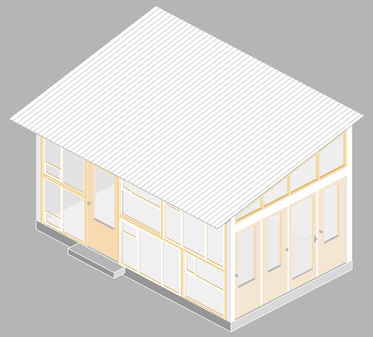
KINNINE SUVEKÖÖK



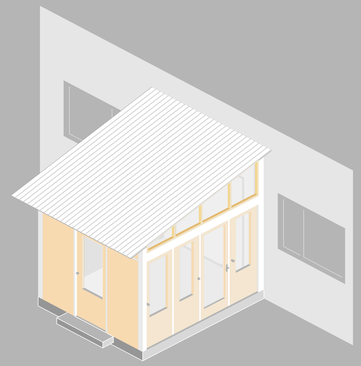
TERRASS



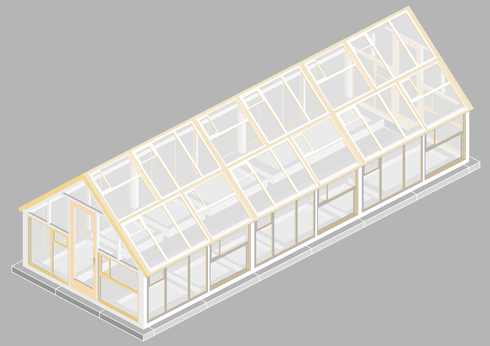
SUVEKÖÖK



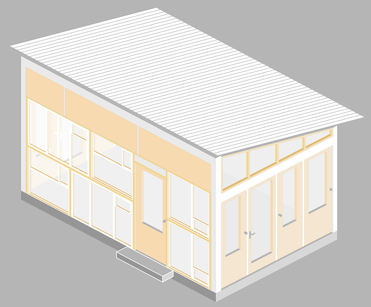
STUUDIO



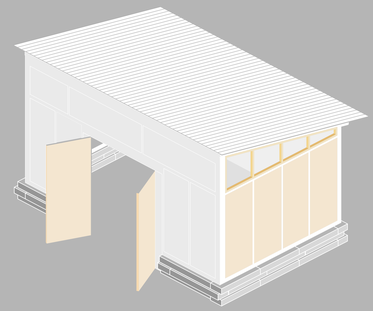
TUULEKODA



KASVUHOONE



ATELJEE



KUUR

TEHASEALA



TEHASEALA



Allikas: Alexela fotokogu.



AITÄH!