hogeschool Windesheim
Dichter bij jou

De natuur als inspiratie voor de duurzame renovatie van schoolgebouwen

6 november 2026

Evert-Jan Velzing

lector Urban Innovation




POLYGOON
POLYGOON

Almere



Bron: Google Streetview



Bron: Google Streetview

Leiden, Rotterdam



Bron: Google Streetview



Bron: Google Streetview

CONCEPT HUISVESTINGSAGENDA IHP ALMERE

UITVOERINGSPERIODE 2035 - 2050

	Scholen	Bestuur	Stichtings-jaar	1-okt-24	prognose 2030	prognose 2035	prognose 2040	planning	ruimte-budget	investerings-budget
Stadsdeel Haven										
3	p.m. SBO/SO (nieuwe school)	-	-	-				2035 >		PM
Stadsdeel Buiten										
3	OBS Bommelstein	ASG	1990	171	162	157	154	2035 - 2038	975	€ 4.142.135
3	OBS De Albatros	ASG	1992	337	355	353	342	2035 - 2038	1920	€ 8.161.105
3	RKBS De Lettertuin	SKO	1993	192	197	196	192	2035 - 2038	1166	€ 4.954.480
3	PCBS De Buitenburcht	Prisma	1994	360	356	353	351	2035 - 2038	1966	€ 8.353.503
3	School van Vrede	SOVSL	-	28	141	136	132	-	864	€ 3.671.830
3	OBS Aurora	ASG	1998	283	304	295	289	2043 - 2046	1654	€ 7.028.098
3	OBS Het Spectrum	ASG	1996	218	236	235	232	2043 - 2046	1367	€ 5.809.580
3	OBS De Egelantier	ASG	2000	183	171	184	160	2047 - 2050	1005	€ 4.270.400
Stadsdeel Stad West										
3	IBS Al Iman	NOOR	1980	410	414	428	441	2035 - 2038	2418	€ 10.277.478
3	OBS Digitalis	ASG	1986	154	165	161	156	2035 - 2038	985	€ 4.184.890
3	OBS Digitalis	ASG	1986	81	79	81	83	2035 - 2038	617	€ 2.624.333
3	OBS De Heliotroop	ASG	1986	277	266	261	256	2035 - 2038	1488	€ 6.322.640
3	Vrije School Almere	SVA	1987	404	424	446	460	2039 - 2042	2514	€ 10.683.650
3	OBS De Duizendpoot	ASG	1988	168	179	176	168	2039 - 2042	1045	€ 4.441.420
3	OBS Vuurvogel	ASG	1988	181	196	195	189	2039 - 2042	1151	€ 4.890.348
3	Montessorischool Muziekwijk	ASG	1990	206	237	245	250	2039 - 2042	1458	€ 6.194.375
3	PCBS De Lichtboei	Prisma	1990	181	176	179	181	2039 - 2042	1110	€ 4.719.328
3	RKBS Crescendo	SKO	1990	262	278	285	287	2039 - 2042	1644	€ 6.985.343
3	OBS Syncope	ASG	1992	426	455	472	481	2039 - 2042	2619	€ 11.132.578
3	PCBS De Omnibus	Prisma	2000	533	563	559	554	2047 - 2050	2987	€ 12.693.135
3	OBS Letterland	ASG	2001	198	186	186	182	2047 - 2050	1115	€ 4.740.705
Stadsdeel Stad Oost										
3	OBS Polygoon	ASG								
3	OBS Caleidoscoop	ASG								
3	PCBS De Verbinding	Cordeo								
3	OBS De Zevensprong	ASG								
3	PCBS De Kraanvogel	Prisma								
3	RKBS Pirouette	SKO								
3	OBS Het Palet	ASG								
3	PCBS De Optimist	Prisma								
3	OBS De Compositie	ASG								
Stadsdeel Stad Centrum										
3	IKC II Centrum	n.t.b.	-	0	-	425	-	2036 - 2040	2338	€ 9.935.438
3	IKC III Centrum	n.t.b.	-	0	-	425	-	2036 - 2040	2338	€ 9.935.438
3	IKC IV Centrum	n.t.b.	-	0	-	425	-	2041 - 2050	2338	€ 9.935.438
Stadsdeel Hout										
3	*Eventueel 8ste basisschool/IKC*	-	-	-	-	-	425	*2035 >*	2338	€ 9.935.438
Stadsdeel Pampus										
3	IKC II Pampus	n.t.b.	-	0	-	-	425	2035 >	2338	€ 9.935.438
3	IKC III Pampus	n.t.b.	-	0	-	-	425	2035>	2338	€ 9.935.438
3	IKC IV Pampus	n.t.b.	-	0	-	-	425	2035>	2338	€ 9.935.438
Voortgezet onderwijs										
3	Oostvaarders College	ASG	1995	1543	1581	1635	1675	2039 - 2042	11000	€ 44.000.000
3	Helen Parkhurst College	ASG	1996	1757	1788	1865	1911	2039 - 2042	12500	€ 50.000.000
2	Praktijkonderwijs Almere; B									
Gespecialiseerd onderwijs										
2	VSO Aventurijn noodgebou									

planning	ruimte-budget	investerings-budget
2031	864	€ 3.671.830
2031	1603	€ 6.814.323
2031	2363	€ 10.042.325
2031 - 2034	1000	€ 4.249.023
2031 - 2034	2338	€ 9.935.438
2031 - 2034	3268	€ 13.890.275
2031 - 2034	1236	€ 5.253.765
2031 - 2034	728	€ 3.094.638
2031 - 2034	688	€ 2.923.618
2031 - 2034	1437	€ 6.108.865
2031 - 2034	1256	€ 5.339.275

School Greenovation

- Natuur-inclusieve schoolrenovaties
- .. als sociaal-ecologische opgave
- .. om duurzaamheid leefbaar, leerbaar en beleefbaar te maken



hogeschool Windesheim
Dichter bij jou

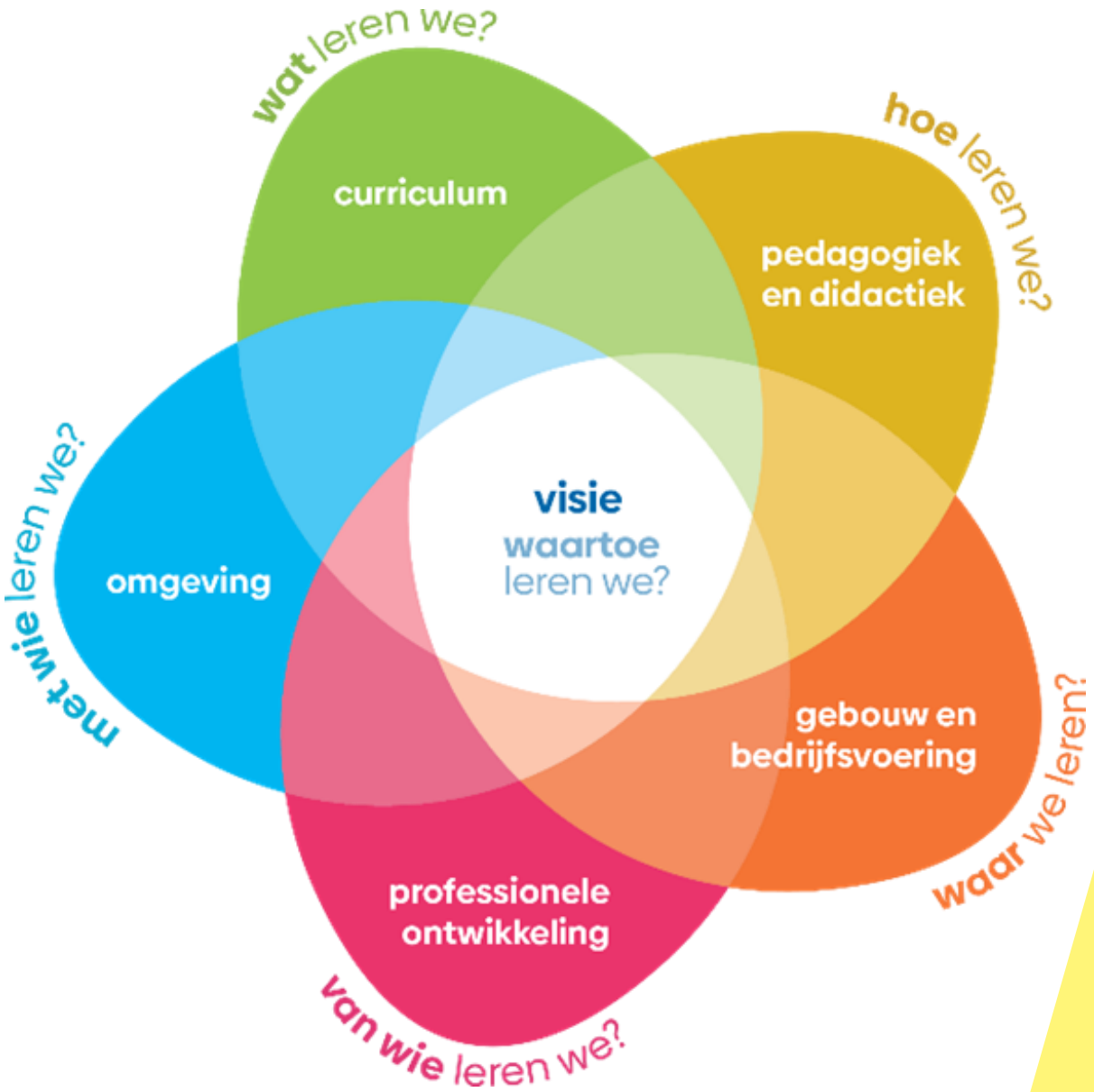
TU Delft
Delft University of Technology

hogeschool Leiden

School Greenovation

Regeneratieve renovatie van schoolgebouwen zorgt ervoor dat duurzaamheid verankerd raakt in zowel de structuur van het dagelijks onderwijs als in het schoolleven in en om de school.

En hoe werkt dat dan?



Bron: https://wholeschoolapproach.lerenvoormorgen.org/

gebouw en bedrijfsvoering

waar we leren?

I. Natuur-inclusieve schoolrenovaties

- Inventarisatie van renovatiestrategie
- Co-creatie van renovatie-eisen die klimaatbestendigheid, ecologisch herstel en pedagogische relevantie integreren
- Verbeteren van besluitvorming over natuur-inclusieve renovatie

gebouw en bedrijfsvoering

waar we leren?

hoe leren we?

pedagogiek en didactiek



HAZELNUTS

IMPORTED FROM TURKEY

SHELLS ACCOUNT FOR 50% OF THE FRUIT WEIGHT

HAVE BEEN USED IN AGROCEMENT COMPOSITES



PISTACHIOS

IMPORTED IN THE NL

80% OF THE QUANTITIES ARE RE-EXPORTED

PISTACHIO SHELLS HAVE BEEN TESTED BEFORE AS FILLER MATERIAL



BEER BREWING WASTE

800 BREWERS NATION-WIDE

BY PRODUCTS OF BREWING ARE: SPENT GRAIN, HOT RUB AND YEAST

SPENT GRAIN ACCOUNTS FOR 85% OF BB WASTE

CURRENTLY USED AS ANIMAL FEED, A BIOFUEL AND IN PACKAGING



AVOCADOS

IMPORTED IN THE NL (BIGGEST SHARE 63%)

OF THIS 9% ENDS IN THE DOMESTIC MARKET

OF THIS 5-6% IS WASTED DUE TO OVERSUPPLY

SEEDS ARE BY-PRODUCTS THEY COMPRISE 13-17% OF THE FRUIT

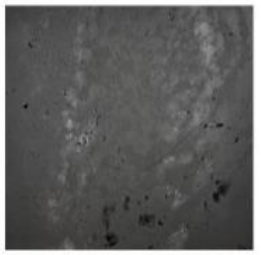


MANGOS

IMPORTED IN THE NL

GENERATES 35-60% WASTE

INAPPROPRIATE DISPOSAL CAN CAUSE ENVIRONMENTAL CONTAMINATION



DATES

IMPORTED IN THE NL FROM THE MIDDLE EAST AND NORTH AFRICA

DOMESTIC CONSUMPTION IS LOW

DATE SEEDS MAKE UP FOR 10% OF THE FRUIT

ALSO USED AS A CAFEINE ALTERNATIVE

THEY HAVE BEEN USED AS FILLER MATERIAL IN BRICKS WITH CLAY AND STRAW AND AS INSULATION BOARDS (WITH PLA)



1

HAZELNUTS

IMPORTED FROM TURKEY

SHELLS ACCOUNT FOR 50% OF THE FRUIT WEIGHT

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2

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3

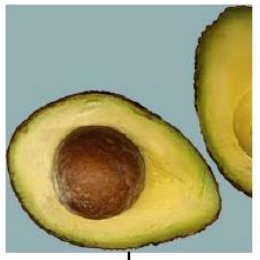
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5

MANGOS

IMPORTED IN THE NL

GENERATES 35-60% WASTE

INAPPROPRIATE DISPOSAL CAN CAUSE ENVIRONMENTAL CONTAMINATION



6

DATES

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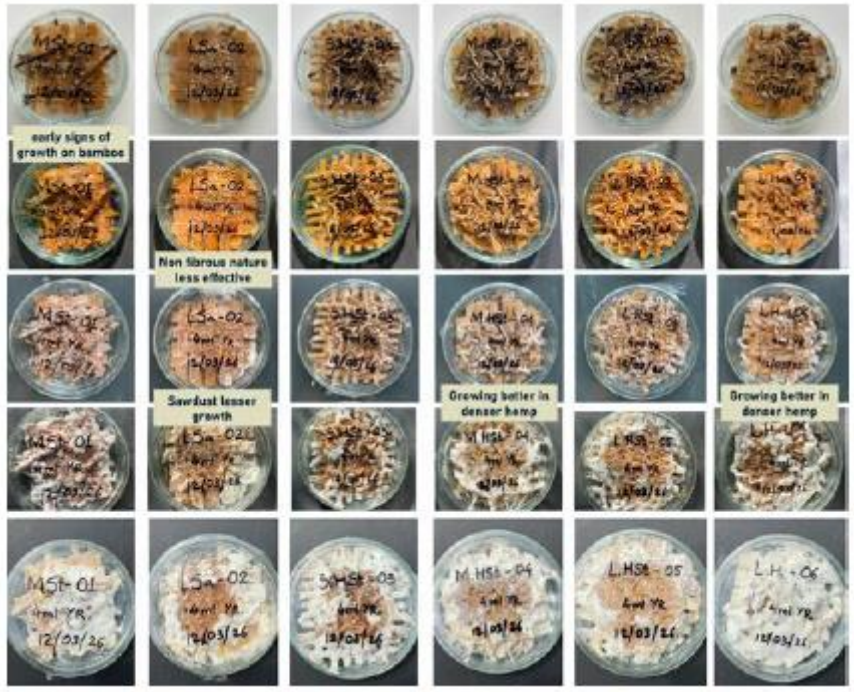
Bron: IOANNOU-KONIJNENBERG

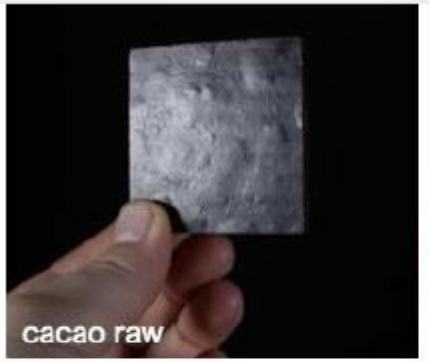
gebouw en bedrijfsvoering

waar we leren?

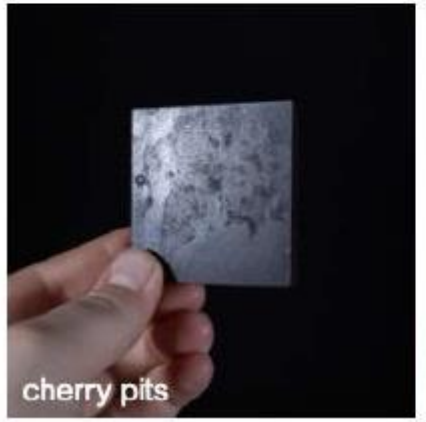
hoe leren we?

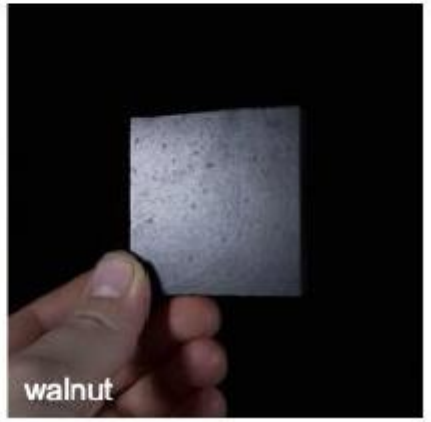
pedagogiek en didactiek











II. Sociaal-ecologische omgeving

LOW

Neglected
Non-human actors are not considered relevant to the design process. Their presence, behaviours, or needs are not acknowledged or integrated, either due to oversight or narrow project scope.

Observed for inspiration
Non-human actors are observed as sources of inspiration, without directly influencing the design process or outcomes. Human designers lead the process, recognizing non-human actors as relevant but not allowing them to actively participate.

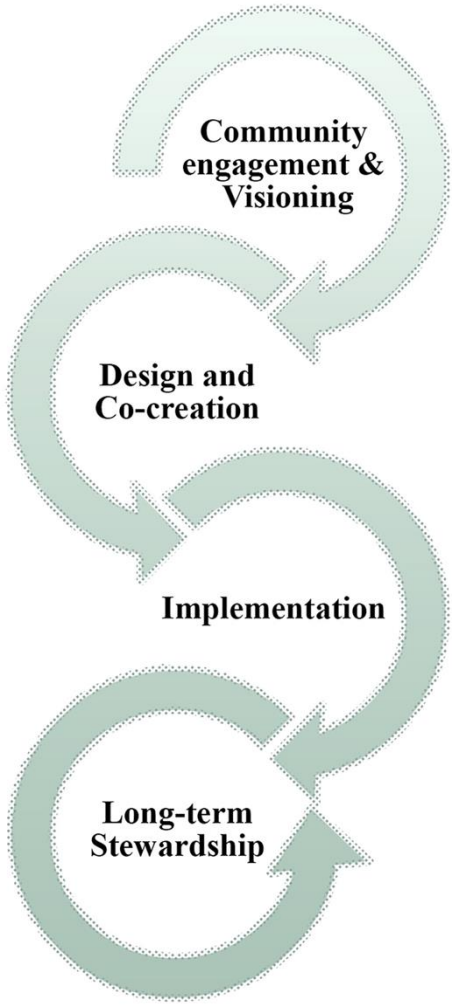
Studied for insights
Non-human actors serve as passive informants, studied through research that guides the design process. While these actors have no direct impact on the outcomes, they are acknowledged by human designers as relevant. Human designers maintain full control of the design process.

Involved as design partners
Non-human actors are recognized as active participants, influencing all or part of the design process. While they play an active role, human designers retain the majority of power and decision-making authority.

Supported in creating the design
Non-human actors lead the design process and hold the majority of power. Human designers act as supportive participants, assisting non-human actors in realizing their agency and creative intent.

Design by the actor for the actor
Non-human actors act autonomously, independently leading the design process without any involvement from human designers. The process is entirely led by non-human actors for their own benefit.

HIGH



Bron: Gualtieri et al., 2026



Analyse in foto's

Geleding van de gevel





Door de verspringende lokalen heeft het gebouw een sterke geleding in het aanzicht, met veel ramen en erkers die de variatie in het gevelbeeld versterken.

Laag gebouw





Het lage volume staat in contrast met de hoge, stedelijke wanden van het grotendeels vooroorlogse Blijdorp. Ondanks het grote bouwvlak oogt het complex kleiner dan dat het is.

Erkers en directe entrees tot de lokalen





Elk lokaal heeft een eigen buitendeur en minstens één erker. Samen zorgen de erkers voor geleding in de gevel.



Tekenen en meten van biodiversiteit



Foto: Edith Winkler



Foto: Hogeschool Leiden



III. Leefbaar, leerbaar en beleefbaar maken

- van wat er is
- en wat er nog meer kan



Foto: Hogeschool Leiden



Bedankt voor uw aandacht

Evert-Jan Velzing

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hogeschool Windesheim
Dichter bij jou

TU Delft
Delft University of Technology

hogeschool Leiden

