AmsTErdam BiLbao cItizen drivEn smaRt cities

Deliverable 4.1: Completed building group Republica

WP4, Task 4.2

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[1] PU = Public
PP = Restricted to other programme participants (including the Commission Services)
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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 864374.

List of beneficiaries

No	Name	Short name	Country
1	GEMEENTE AMSTERDAM	AMST	Netherlands
2	AYUNTAMIENTO DE BILBAO	City of Bilbao	Spain
3	FUNDACION TECNALIA RESEARCH & INNOVATION	Tecnalia	Spain
4	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK	TNO	Netherlands
5	FUNDACION CARTIF	CARTIF	Spain
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17	CLUSTER DE ENERGIA	CEPV	Spain
18	IBERDROLA ESPANA SA	IBE	Spain
19	TELUR GEOTERMIA Y AGUA SA	TELUR	Spain
20	ENTE VASCO DE LA ENERGIA	EVE	Spain
21	SPECTRAL ENTERPRISE BV	Spectral	Netherlands
22	MAANZAAD BV	Republica	Netherlands
23	EDWIN OOSTMEIJER PROJEKTONTWIKKELING BV	EdwinOostmeijer	Netherlands
24	STICHTING AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS (AMS)	AMS Institute	Netherlands
25	STICHTING WATERNET	WATNL	Netherlands
26	DNV NETHERLANDS B.V.	DNV	Netherlands
27	GROENE ENERGIE ADMINISTRATIE BV	Greenchoice	Netherlands
28	CIVIESCO SRL	CIVIESCO s.r.l.	Italy
29	ZABALA INNOVATION CONSULTING. S.A.	ZABALA	Spain
30	FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	Fraunhofer	Germany

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Document History

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Project Acronym	ATELIER	
Project Title	AmsTErdam and BiLbao cItizen drivEn smaRt cities	
Project Coordinator	Frans Verspeek ATELIER.EU@amsterdam.nl City of Amsterdam	
Project Duration	01/11/2019 – 31/10/2024 (60 Months)	
Deliverable No.	D4.1 Completed building group Republica	
Diss. Level	Public (PU)	
Deliverable Lead	Republica	
Status		Working
		Verified by other WPs
	x	Final version
Due date	31/10/2022	
Submission date	11/12/2023	
Work Package	WP 4 - Task 4.2 Republica development	
Work Package Lead	Republica	
Contributing beneficiary(ies)	Republica	
DoA	Design, construction and evaluation of the performance of the Republica development is a major task in the Amsterdam demonstrator work package. The plot consists of 21000 m2 of buildings (including the parking facilities of about 5000 m2). It is composed of 7 buildings: 1 Residential + commercial, 3878 m2 2 Residential + commercial, 1957 m2 3 Residential, 1884 m2 4 Commercial (hotel), 5765 m2 5 Mixed Commercial (Café, Hotel, Offices), 2243 m2 6 Commercial (leisure), 898 m2 7 Parking, 5636 m2 This plot will be built according to a standard significantly better than the national building code prescribes, including additional insulation, use of circular/recyclable material, waste energy recovery (from air and waste water), flexible and adaptive building and rainproof buildings (façade vegetation, green roofs). Republica will feature a private smart microgrid for both electricity and thermal energy. The microgrid will feature: maximal roof coverage with PV panels (219 kWp), integration of (191) PVT panels, large centralized battery system (1,4 MWh), 25 – 50% smart EV chargers (out of 90 parking spots), centralized heat pumps coupled to an aquifer thermal energy storage system (ATES), heat recovery systems, and additional thermal storage buffers for flexible control of heat pumps. The residential apartments	

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		and restaurants within Republica will also be connected to the Buiksloterham Resource Recovery Station (RRS), which will extract energy and nutrients from the waste streams. In addition, task will involve customization of Spectral's Energy Management System (EMS) and relevant control algorithms according to the requirements of the Republica microgrid. Following the realization phase, the performance of the EMS and local energy assets will be carefully monitored, and system refinements implemented as required.	
Date	**Version**	**Author**	**Comment**
11/12/2023	0.1	M. Brautigam	First draft
23/11/2023	1.0	M. Brautigam R. Rooth	Final draft
30/11/2023			Review by O. Shafqat
30/11/2023			Review by J. Devis
06/12/2023	2.0	M. Brautigam R. Rooth	Final document

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Contributions of Partners

The following **Fout! Verwijzingsbron niet gevonden.** depicts the main contributions from project partners in the development of this deliverable.

Partner short name	Contributions
Republica	Overall content to all sections

Table 1. Contributions of Partners

Abbreviations and Acronyms

Acronym	Description
PED	Positive Energy District
RRS	Resource Recovery Station
DSO	Distribution System Operator
F&B	Food and Beverage
EPC	Energy Performance Coefficient/Certificate
BEST	Building Energy Specification Table
DoA	Description of Actions (from the Grant Agreement)
TCT	Time-bound limitation of Transport Capacity

Table 2 Abbreviations and Acronyms

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0. Executive Summary

The goal of this report is to validate the delivery of the building block Republica and its contribution to the Positive Energy District Buiksloterham in Amsterdam North.

The Buiksloterham demonstrator proves how a mixed-use block (residential, commercial, hotel) can contribute to the establishment of a positive energy district. Target group for the document is other real estate developers having sustainability ambitions as well as other stakeholders, like electricity distribution system operators (DSO) and municipal officials.

Republica is designed as a highly efficient building block with innovative features to test energy storage, smart electric vehicle charging, energy management and trading, and energy communities. It also serves as a “living lab” environment to study the behaviour of inhabitants and occupants in such an environment.

Republica has been delivered with only small deviations to the original plans. These deviations did not have any impact on the original design ambitions. Delivery has been slightly more than a year later than originally planned. The main challenges responsible for the delays are the following:

- The COVID-19 pandemic led to large societal uncertainties and slowdowns of apartment sales and exploitation processes (e.g. the hotel and food and beverage operation).
- Electricity grid congestion.
- Worldwide logistics problems, leading to steep price increases of construction materials and late delivery (of e.g. the battery).

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1. Introduction

1.1. Purpose and Target Group

Positive Energy District projects are targeting neighborhoods and districts that on a net basis deliver more energy than they consume. On a district level this enables a wider integration of renewables and lowering of emissions while providing additional benefits to the energy systems. The ATELIER Amsterdam PED consist of three building blocks, an external renewable energy facility and a Resource Recovery Station to recover energy from waste streams. Republica is one of these building blocks.

The purpose of the demonstrator is to show how a mixed-use block (residential, a hotel, and commercial facilities) can contribute to a positive energy district.

This document serves as a validation of the building requirements that were initially defined or that had to be adapted during the course of the development because of external circumstances. As a checklist the list of actions from the ATELIER grant agreement, related to Republica, is used as a basis for this purpose.

The target group for this document are real estate developers with sustainability ambitions and other stakeholders, like electricity district grid operators (DSO) and municipal officials.

The establishment of the actual energy performance of the Republica building block is reported in the WP9 Monitoring and Evaluation deliverables .

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2. Objectives and Expected Impact

2.1. Objective

WP4 aims to demonstrate the key principles of positive energy districts (PED) in the Buiksloterham district, with the objective of facilitating large-scale development and implementation of the PED's in Amsterdam in the future.

Within this district, a number of demonstrator sites which feature high performance building blocks, smart microgrids and local energy cooperatives will be connected to create an integrated Buiksloterham Energy Community (BEC). One of the high performance and highly innovative building blocks is Republica.

2.2. Expected Impact

The expected impact is a highly efficient building block with innovative features to test energy storage, smart electric vehicle charging, energy trading and energy communities as well as a "living lab" environment to study the behaviour of inhabitants and occupants in such an environment.

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3. Overall Approach

This chapter describes the validation of the construction of Republica and is structured as follows:

- Providing design data (EPC values) for the buildings in the block as well as the innovative elements, together with design images
- Showing some pictures of the construction progress using the site webcam and occasional pictures
- Pictures of the final state
- A checklist of the ATELIER actions related to Republica

3.1. Design data

The image below is an artistic impression of the Republica block, showing the green roofs and the PV panels.

Figure 3-1 Artistic impression Republica, combined PV/green roof visible

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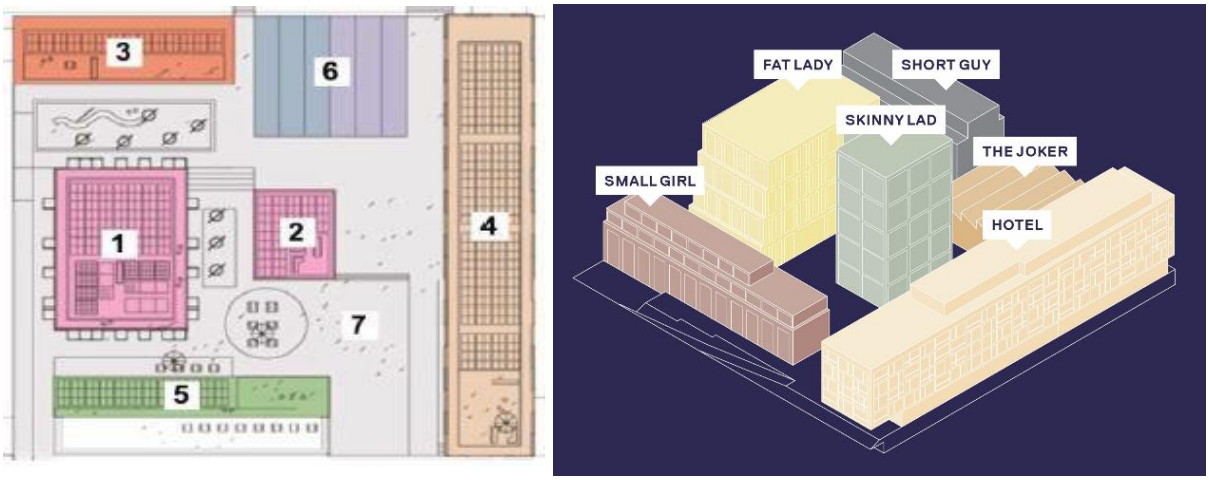

Figure 3-2 Subdivision of Republica in individual buildings and underground parking

Table 3-1 Basic energy performance data for permit.

Building	Floor area	EPC (Energy Performance Coefficient)[2]	EPC required[3]
1 Fat Lady	3878	0.68	1.0
2 Skinny Lad	1957	0.79	1.0
3 Short Guy	1884	0.30	0.4
4 Hotel	5765	0.91	1.0
5 Small Girl	2243	0.63	1.0
6 Joker	898	0.35	1.1
7 Plaza/underground parking		n.a	

The table clearly shows that the individual elements of the Republica block are designed for a much higher performance than required for the Dutch building code (lower EPC coefficient). Innovative elements like the battery or the use of circular materials are not valued (yet) in the building code.

[2] According to "20180706 BSH 14 EPC resultaten en PV panelen.pdf
[3] According to Enorm versie 3.61

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3.2. Construction progress

The images in this section reflect the progress of the construction over time. Demolition of former construction and ground works started early 2021.

Figure 3-3 Situation June 202

Figure 3-4 Webcam, situation November 2021

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Figure 3-5 Webcam, situation April 2022

Figure 3-6 Webcam, situation November 2022

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3.3. Final state pictures

Official handover of the last building block in Republica took place at the beginning of November 2023 by transferring the “keys” to new owners or exploitation companies. Below, some images are provided with building blocks in final state.

Figure 3-7 May 2023, the hotel

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“Fat lady”

“Skinny lad”

Figure 3-8 July 2023

Figure 3-9 July 2023, view on the Joker

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Figure 3-10 Li-ion battery installed

Figure 3-11 Underground parking with EV chargers

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3.4 Development of Republica in actions

The table below shows the Republica related actions from the ATELIER DoA. If they were modified during the project (with agreement of the European Commission) then this is mentioned in the column “modifications”. The last column shows whether the action was satisfactorily executed.

Table 3.2 Republica development in actions:

		STATE CAPTION - Orange: modificaed actions (increase + or decrease - of ambition) - Green: stays the same		*update: 25 september 2023*	
	STATE	GRANT AGREEMENT ACTIONS	MODIFICATIONS	Reasons / impact modification	DELIVERED WITH EQUIVALENT PERFORMANCE
HIGH ENERGY PERFORMANCE BUILDINGS [new high performance residential building]		**Action 1 Republica residential improved insulation**			
		The buildings of the Republica group receive an insulation package to make the buildings very low energy buildings. Actual values depend on the location in the building and have values over Rc=5 m2K/W.	unmodified		√
		Action 2 Republica residential triple glazing			
		The buildings of the Republica group receive triple glazing in well insulated window frames to make the buildings very low energy buildings. The heat transmission coefficient of the window plus frames is Uwindow = 1.0 W/ m2K.	unmodified		√
		Action 3 Republica residential Shower heat recovery			
		Shower drain water heat recovery systems (proposed is DSS wtw 900/4) in the residential part of buildings 1 and 2, building 3 (fully residential). Heat recovery factor is 0.48. This innovation will reduce the heat required for domestic hot water by almost 50%.	unmodified		√
		Action 4 Republica residential Balanced ventilation			
		The Republica buildings will have mechanical ventilation with heat recovery. Efficiency of heat recovery is 96%. The dwellings in building 3 have collective heat recovery, those in buildings 1 and 2 have individual heat recovery. Proposed ventilation system is Zehnder WHR 950	unmodified Proposed ventilation system is Orcon type HRC 300 Max Comfort (Blok 1+2) .		√
		Action 5 Republica residential Smart skin technology			
		Several smart skin innovative technologies are under consideration. One of them are “power windows”. Selection is subject to the detailed design of the buildings.	➢ Dismissed: power revenue of powerwindows is too limited, also low voltage (12 watt), meaning it is not compatible with other electricity use, the extra costs of wiring of the windows, the extra installation costs and the high initial purchase price made this a negative trade off. The powerwindow option did not offer triple glazing. o Consequently we investigated the smart window option of having screenlines which would be steered by a Building management system, allowing for smart temparture cooling/warming depending on the weathercircumstances and occuypancy (hotel). However also this system only allowed use in a double glazed frame, with a EPC that was much lower than using triple glazing. o Therefore we introduced the triple glazing in situ of the powerwindows/screenlines.		√
		Action 6 Republica residential Facades with recycled construction material			
		At least one façade of each building of the group will be constructed from recycled/low embedded energy material. For modern buildings, embedded energy as well as the energy needed for construction and demolition are a significant fraction of the “life cycle energy use” of building and therefore it is gaining more and more attention.	unmodified		√

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RENEWABLE ENERGY SYSTEMS ON SITE [high performance buildings]		**Action 12 Republica Heat pumps**			
		Heat pumps (1.2 MWth in total, plus booster pumps) are used in Republica for heating of the dwellings. The combination of the heat pumps with the use of subsoil heat stored in the summer period enhances the coefficient of performance of the system.The heat pumps are smart grid ready, which means that they can be controlled externally. In combination with the smart microgrid and the electricity storage, this enables management of the electrical load within the buildings and delivery of flexibility services.	unmodified		√
		Action 13 Republica Grinders (biogas production)			
		All dwellings in the Republica buildings group (60) will be equipped with kitchen grinders that will solve part of the waste issues in Amsterdam. The grinded fruit and vegetables waste is transported by the sewage system and will produce biogas (about 150 kWh/inhabitant equivalent*year) in the local energy and resource recovery station.	The residential apartments in building blok 1&2 of Republica will be equipped with kitchen grinders that will solve part of the waste issues in Amsterdam. The grinded fruit and vegetables waste is transported by the sewage system and will produce biogas (about 150 kWh/inhabitant equivalent*year) in the local energy and resource recovery station. This action is affected by the activities of Waternet in WP4 task 8. Waternet needs to adapt their plans due to external circumstances. This is under discussion with the EU project officer.		√
		Action 14 Republica Vacuum toilets (water saving)			
		Innovative techniques for separating waste streams stimulate the recovery of energy and resources from sewage. This reduces the amount of energy leaving through the boundary of the district (Biogas: 150 kWh /(inhabitant equivalent*year), water savings about 12.5 m3/inhabitant equivalent*year).	The commercial kitchens of both the hotel operation plus the additional restaurant on site are equipped with a professional grinder installation. Once up and running the waste could be burned in the biogas station. Because of their substantial volume they will contribute considerably in both biogas production as in reduction of waste-transport-movements. See also action 13.		X
		Action 16 Republica Rain-proof buildings (green roofs)			
		Urban water management is supported by green roofs on the buildings. The evaporation of water keeps the roofs cool, which reduces cooling load in the summer and the performance of the PV panels improves. Additionally, it regulates water discharge to the sewer system, avoiding overloads during heavy showers. The roofs will be covered with vegetation below the PV panels.	unmodified		√
		Action 17 Republica District Heating connection			
		The heat pumps dimensioning is dependent on both cooling and heating requirements as for a well-engineered system the subsoil should be in thermal balance (equal heat input and extraction). In this case, the heat capacity is not sufficient for peak load. This is solved by connecting the buildings to the district heating grid. The district heat is the low priority option. The district heating grid is the result of the municipal waste incineration CHP, that has 70% lower carbon emissions than a natural gas fired peak boiler.	unmodified		√

Comment: Action 14 has not been executed as originally planned, but has been replaced by adding a professional kitchen grinder in the Food and Beverage facilities

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TECHNICAL ACTIONS		**Action 19 Republica 23-45 EV charging points**			
		In line with the expected development of the use of electric vehicles in the district, the amount of electric vehicle charging point in the parking facilities of Republica will grow from 25% to 50% (of about 95 parking spaces. Smart/flexible charging points will be integrated with the smart-grid EMS, assisting in managing the load of the building on the grid.	unmodified		√
		Action 21 Republica (commercial) improved insulation			
		The buildings of the Republica group receive an insulation package to make the buildings very low energy buildings. Actual values depend on the location in the building and have values over Rc=5 m2K/W.	unmodified		√
		Action 22 Republica (commercial) triple glazing			
		The buildings of the Republica group receive triple glazing in well insulated window frames to make the buildings very low energy buildings. The heat transmission coefficient of the window plus frames is Uwindow = 1.0 W/ m2K.	unmodified		√
		Action 23 Republica (commercial) Smart skin technology			
		Several smart skin innovative technologies are under consideration. One of them are “power windows”. Selection is subject to the detailed design of the buildings.	see comments on action 5		n.a
		Action 24 Republica (commercial) Facades with recycled construction material			
		At least one façade of each building of the group will be constructed from recycled/low embedded energy material. For modern buildings, embedded energy as well as the energy needed for construction and demolition are a significant fraction of the “life cycle energy use” of building and therefore it is gaining more and more attention.	unmodified		√
		Action 27 Republica (commercial) Shower heat recovery			
		Shower drain water heat recovery systems (proposed is DSS wtw 900/4) in the hotel rooms of building 4. Heat recovery factor is 0.48. This innovation will reduce the heat required for domestic hot water in the rooms by almost 50%.	unmodified		√
		Action 28 Republica (commercial) Balanced ventilation			
		The Republica buildings will have mechanical ventilation with heat recovery. Efficiency of heat recovery is 96%. The commercial units in buildings 1, 2, 4 and 6 have collective heat recovery, those in building 5 have individual heat recovery. The proposed ventilation system is Zehnder WHR 950. Ventilation is time-controlled, except for the gym and restaurant/bar of the hotel which are CO_2-controlled.	Balanced ventilation details: Hotel has a collective WTW unit, one in cellar/one on roof Blok 5 has a collective WTW unit for bar and office Daalderop type HRU Eco 300R. The 10 studio’s share 5 units (2 studio’s per unit) Blok 6: will have a (collective) WTW unit, unspecified.	The brand of the heat recovery ventilation equipment has changed from the original plan in the proposal. This modification was entered in P1 - There is no impact on the expected performance, planning and budget	√
		Action 30 Automatic solar blinds			
		Automatic solar blinds help managing the heat load of buildings (in summer) and contribute to the comfort of building occupants by preventing glare in winter.	part of smart skin solutions, see action number 5		n.a
RENEWABLE ENERGY SYSTEMS ON SITE [PV]		**Action 31 Republica PV panels**			
		The roofs of the buildings will be extensively covered with PV and PVT (315 Wp/panel), 219 kWp in total, including 191 PVT panels. The efficiency is raised by the measures to keep the roof cool.	PVT panels will not be deployed but instead, higher efficiency PV panels will be installed, for a total of 264.8 kWp		√
		Action 33 PV plant Buiksloterham			
		Additional photo-voltaic electricity in the form of a PV plant is planned for the district. The planned size will be about 375 kWp.	The action is widened to search for any local renewable energy source. This specifically includes an effort to participate in local Amsterdam North wind energy that is currently being developed	So far, three serious attempts to realise additional PV on roofs in the district, owned by external parties have failed. Alternative attempts to invest in local renewable are in progress, but realisation is becoming increasingly uncertain	

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TECHNICAL ACTIONS [ICT]		**Action 34 Republica Energy Management system**			
		An advanced building energy management system will be installed in Republica, integrated with the local smart microgrid, to optimize energy performance of the building group	unmodified		√
		Action 35 Republica Smart microgrid			
		Republica will feature an integrated microgrid which will supply electricity, heat, and cold to the six building blocks within the plot. Local RES (PV / PVT arrays), a centralized battery system, heat pumps, thermal storage, EV chargers, and smart meters will be connected to the EMS which manages the microgrid.	PVT panels will not be deployed but instead, higher efficiency PV panels will be installed	The impact on the grid will be negligible as Republica has an advanced Energy Management System and large battery that allows the block to control grid load. That being said, there currently is heavy grid congestion in the Amsterdam demo site area and the distribution grid operator has sent around letters indicating that transport limitations may be applied.	√
RENEWABLE ENERGY SYSTEMS ON SITE [energy		**Action 41 Republica Li-ion electricity storage**			
		A stationary battery will be installed within the building group (currently a Tesla power pack is proposed). The battery supports the energy management of the building group, facilitating peak shaving, increasing self-consumption (1 MW /1.4 MWh). It is controlled by the smart microgrid.	The battery supplier which has been selected / contracted by Republica is ATEPS (and not Tesla). The capacity of the system will be 1MW / 1,25MWh		√
		Action 43 Republica ATES			
		Heat and cold are stored in doublets in underground. Together with thermal buffers this enhances the performance of the heat pumps.	unmodified		√

Comment: The various smart skin solutions appeared to have a poor business case and have been replaced by triple glazing which also energetically proved to outperform other solutions investigated.

All in all, the overall performance of the buildings with the applied actions should be comparable to the originally planned performance.

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4. Hurdles and Lessons learned

4.1 Lack of sales of apartments, causing financial difficulties

Market uncertainties occur at all times, but the Covid pandemic was a force majeure. The first hurdle was the sale of apartments. Both uncertainties attributed to the initial months of Covid and also the location in Amsterdam North failed to convince the potential buyers of future qualities. Luckily Covid had lower negative impact for residential dwellings as most people were confined and spacious apartments became increasingly attractive and appreciated.

4.2 Covid, economic uncertainty

So far the residential program of the development has been secured. However, since the commercial buildings part of the project is for a large part under a limitation of a hotel zoning/function, this proved to be a lot harder. Financial institutions were not willing to finance hotel developments during the Covid period. This has been mitigated in various ways:

- Dissolve contract with the hotel partner who also was unable to provide/secure financing.
- Moved hotel section of the development from first to build to last to build (extra costs € 300K)
- Start conversation with Local Government in order to change the zoning from hotel to residential (this would take a change in zoning and was considered too time costly)
- Talked with various institutional parties and investment companies in order to sell the development.

Finally, a solution was reached when (half a year later) a new operator was found which provides a cross over between an Airbnb product and a regular hotel. Epidemic proof and more versatile in times of economic downturn. Additionally by this time the COVID-19 crisis had to some extend subdued and lost its urgency.

4.3 District electricity grid congestion

By the time Republica applied for its grid connection, the local net operator (Liander) had just announced issues with grid congestion. This meant only a limited amount of grid capacity was available. As Republica has one large scale/industrial sized grid connection, this provided a challenge in its energy profile. Through talks and negotiations with help from Spectral and TNO it was possible to get an innovative TCT contract (“Tijdsgebonden Capaciteit bij Transportbeperking” (Time-bound limitation of Transport Capacity)). This reduces the time blocks under capacity limitation because of congestion to a certain period per year, and for certain hour blocks during the day. The battery is used to help in meeting the energy demand

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during these congestion periods. More details and lessons around the grid congestion issue can be found in future deliverables related to the Innovation Ateliers.

4.4 Worldwide logistics problems

The logistic problems transpired both in the battery (Suez channel) as well as in the problematic availability of various building materials, with steep price changes as a result. Here not much could be done to mitigate. For the future suggested action is to try make more strict price agreements, but this remains a fragile balance between developer and building company with logistic parties and subcontractors.

4.5 Uncertain times for food and beverage operators, personnel shortages

Due to a large scale exit of staff from the F&B (Food and Beverage) operations during the COVID-19 period, once confronted with a full scale reopening of businesses, F&B parties were unable to find staff. By this time prices were rising rapidly and not in the least due to exploding energy prices fueled by the Ukranian war. The mix of a lack of labour, debts from the Covid era and hiked energy prices proved fatal for a lot of F&B operators. Lobbying, talking and marketing is now happening for approximately 2 years. It is hoped to conclude the first contract next month/starting 1/1/24. No mitigation measures can be taken here.

More lessons may be extracted through discussions in e.g. the ATELIER Innovation Ateliers

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5. Conclusions

Republica has been delivered with only small deviations to the original plans. The deviations do not affect the original design ambitions. Delivery has been slightly more than a year later than originally planned. Main reason was the COVID pandemic, leading to large societal uncertainties and slowdowns of apartment sales and exploitation processes of e.g. the hotel.

6. Outputs for Other WPs

The construction of Republica has revealed a lot of issues that are important for the design of future Positive Energy Districts. To name a few:

- Electricity grid congestion, that is likely a long lasting issue with the accelerating uptake of PV, heat pumps and electrical vehicles in society
- The difficulties in finding nearby opportunities for renewable energy generation
- Up front design of energy communities

The outcomes of the Republica implementation have also informed the activities of e.g. WP3 on Innovation Ateliers, WP7 on citizen engagement and of course in the future, WP9 will draw on results and experiences of Republica.

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Annex

Delivery reports block 4-5 and block 6

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PROCES-VERBAAL VAN OPLEVERING/

DELIVERY REPORT

Development and Realization
Of BobW Hotel by Maanzaad BV

30 juni 2023

PROCES-VERBAAL VAN OPLEVERING / DELIVERY REPORT

Signed Parties,

1] **Maanzaad B.V.**
established in Amsterdam, with its offices at Kuipersteeg 5D (1012 HR), registered with the Trade Register of the Chamber of Commerce under number 63044706, represented by M. Brautigam
hereinafter: the "**Landlord**",

2] **Bob W Finland OY**
established in Finland, with its offices at Kankurinkatu 5lh. 48 00150, registered with the Trade Register of the Chamber of Commerce under number 2713564-2, represented by Frank Esmeijer;
hereinafter: the "**Tennant**",

The leased space as agreed in the signed lease agreement is constructed in line with the conditions of the competent authorities and the fire safety regulations.

In accordance with the Technical Description as specified in annex 1 to the signed lease agreement, the brand specifications of BOB W (annex 11 to the signed lease agreement) and the Demarcation List (Lessor works) (annex 2 to the lease agreement);

The leased space is ready for intended use (subject to installation of the FF&E and OS&E by Lessee) and save for minor Snagging items as listed in separate attachment (list + photo's in annex 1 to this delivery report) as referred to in article 12.9 of the signed lease agreement.).

The Lessor has advised that the technical installations in the Leased Space as mentioned in the Technical description are in good working order with the instructions and training relating to the technical installations which will happen before bouwvak (21/7/23) including hand over of manuals and any ancillary certificates or documents.

Spaces are clean and tidy and free from visible physical defects except the above mentioned snagging items.

Full and direct access (on foot and vehicular) to the Leased Space is available and such that trucks can park and unload within reasonable vicinity of the Leased Property.

The permit 'Brandveilig gebruik' has been handed in by the Local Authorities on june 16th 2023. De certification of the 'brandmeld- en ontruimingsinstallatie' has taken place on 12-06-2023.

The snagging items will be resolved as soon as possible but before at the latest before bouwvak starting on 21/7/23. Any snagging rectification will be done in accordance with the requirements and requests of BobW.

Various works on behalf of BobW have been executed by Maanzaad BV during construction phase. These works, based on the provided brand specifications, have been commissioned and form an integral part of the delivery process.

Signed in Amsterdam on June 30th

Maanzaad BV

M. Brautigam

BobW

Frank Esmeijer

Annex 1 to this delivery report: snagging item

Sleutelformulier

Project: 845 "Republica" Kavel 14 Buiksloterham Amsterdam

Gebruiksfunctie: Hotel

Bouwnummer: **BOBW** Blok 4A **Papaverhof 71**

Datum: **30-6-2023** **1032 LX Amsterdam**

Regel:	Onderdeel:	Aantal cilinders:	Sleutelnummer:	Aantal sleutels:	Bijzonderheden:
1	Sluitsysteem blok 4	IM625987 (Nieuw)	TD4	~~2~~ 3x	Technische dienst blok 4
2	Postkast	1	Y07743	2	
3	Saldopasje			10	
4					
5					

6 extra besteld

Regel:	Onderdeel:	Parkeerplaats	Badgenummer:	Toegang slagboom	Aantal zenders	
1	Handzender parkeren	117	500738	NEE	1	x
1	Handzender parkeren	118	500739	NEE	1	x
1	Handzender parkeren	119	500740	NEE	1	x
1	Handzender parkeren	120	500741	NEE	1	x
1	Handzender parkeren	121	500742	NEE	1	x
1	Handzender parkeren	122	500743	NEE	1	x
1	Handzender parkeren	123	500744	NEE	1	x
1	Handzender parkeren	124	500745	NEE	1	x
1	Handzender parkeren	125	500746	NEE	1	x
1	Handzender parkeren	131	513442	NEE	1	x
1	Handzender parkeren	132	513443	NEE	1	x
1	Handzender parkeren	133	513444	NEE	1	x
1	Handzender parkeren	134	513445	NEE	1	x
1	Handzender parkeren	135	513446	NEE	1	x
1	Handzender parkeren	136	513447	NEE	1	x
1	Handzender parkeren	137	513448	NEE	1	x
1	Handzender parkeren	138	513449	NEE	1	x
1	Handzender parkeren	139	513450	NEE	1	x
1	Handzender parkeren	140	513451	NEE	1	x
1	Handzender parkeren	141	513452	NEE	1	x

Frank Esmeijer

Bluda

30/06/2023

Sleutelformulier

Project: 845 "Republica" Kavel 14 Buiksloterham Amsterdam

Gebruiksfunctie: Hotel

Gebruiker **BOBW** Blok 5A

Datum: **30-6-2023**

Regel:	Onderdeel:	Aantal cilinders:	Sleutelnummer:	Aantal sleutels:	Bijzonderheden:
1	Sluitsysteem gebouw	derden	5A	5	
2	Sluitsysteem blok 5	derden	TD5	2	Technische dienst blok 5 — 6 extra besteld
3					
4	Postkast	1	Y0538	2	Papaverhof 4
5	Postkast	1	Y0526	2	Papaverhof 5
6	Postkast	1	Y0196	2	Papaverhof 6
7	Postkast	1	Y0195	2	Papaverhof 7
8	Postkast	1	Y0194	2	Papaverhof 8
9	Postkast	1	Y0193	2	Papaverhof 9
10	Postkast	1	Y0198	2	Papaverhof 10
11	Postkast	1	Y0199	2	Papaverhof 11
12	Postkast	1	Y0197	2	Papaverhof 12
13	Postkast	1	Y0192	2	Papaverhof 13
14					
15					
16					
17					
18					
19					
20					

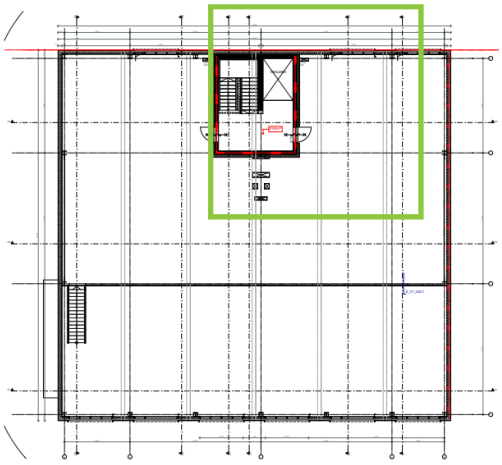
B. Lach 30/06/2023

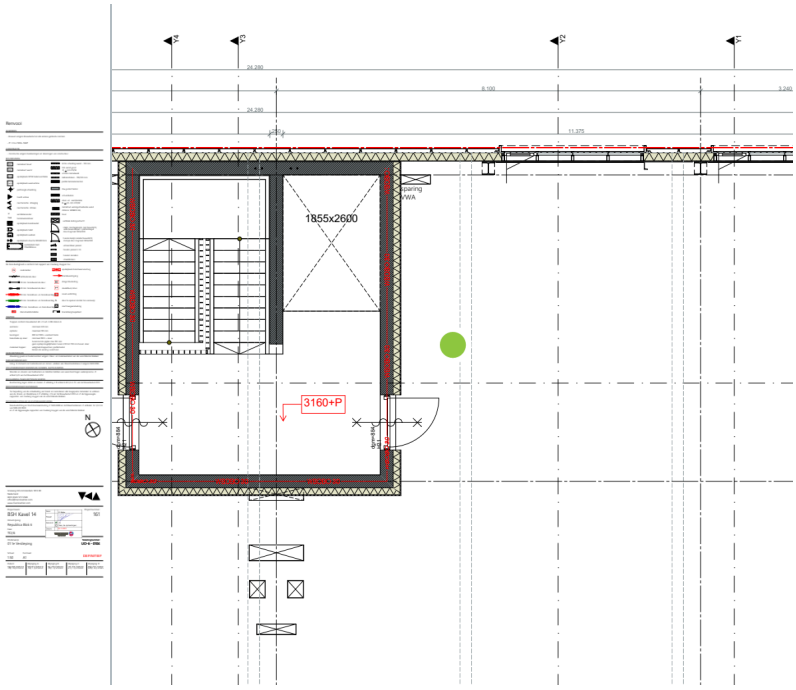
Frank Esmeijer

OPL272 Zijn er gebreken geconstateerd?

Oplevering

Project	845 Kavel 14	Werkpakket	00 Bouwplaats Algemeen
Project nr.	845	Workflow	Oplevering
Gebouw	BLOK 6	Aanmaakdatum	18 sep 2023, 13:56
Bouwlaag	01 eerste verdieping	Aangemaakt door	Sven Veenboer, Vink Bouw B.V.
Tekening	UO-6 - 0104 01 1e Verdieping	Vervanger voor	Frank van den Dool, BTB
RUIMTES BLOK 6	KNR 6.01	Verantwoordelijke	(Goedgekeurd, afgerond)
Checklist	PVO41		
Punt op checklist	Zijn er gebreken geconstateerd?		





18 sep 2023, 13:56
Toegewezen aan Vink Bouw B.V.

Aangemaakt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
Gevolmachtigde:	Sven Veenboer, Vink Bouw B.V.
Onderwerp:	Zijn er gebreken geconstateerd?
Beschrijving:	Aftimmering tpv trappenhuis lift

1.1, 2023-09-18, 13.53

30 nov 2023, 14:58
Gemeld als afgerond door Vink Bouw B.V.

Bijgewerkt door:	Sven Veenboer
Nieuwe gevolmachtigde:	Frank van den Dool, BTB
Beschrijving:	Het trappenhuis is brandwerend functioneel afgetimmerd. Doordat de brandscheiding boven de lift op het dakje uitgevoerd moest worden en het plafond trappenhuis eronder is het op deze wijze uitgevoerd, hier moet volgens tekening door de afbouwpartij een voorzetwand gemaakt worden.

30 nov 2023, 15:06
Goedgekeurd door BTB

Bijgewerkt door:	Sven Veenboer
Vervanger voor:	Frank van den Dool, BTB

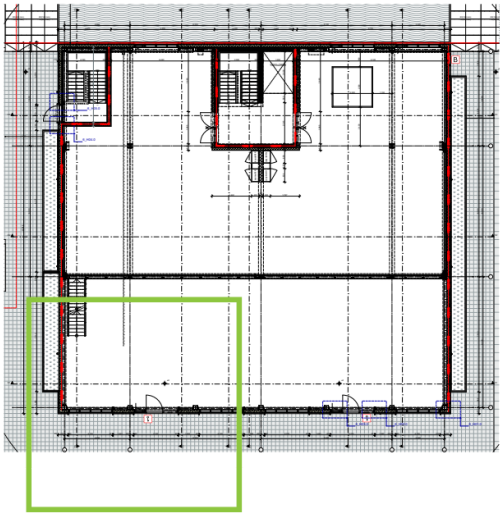
11 dec 2023, 11:40

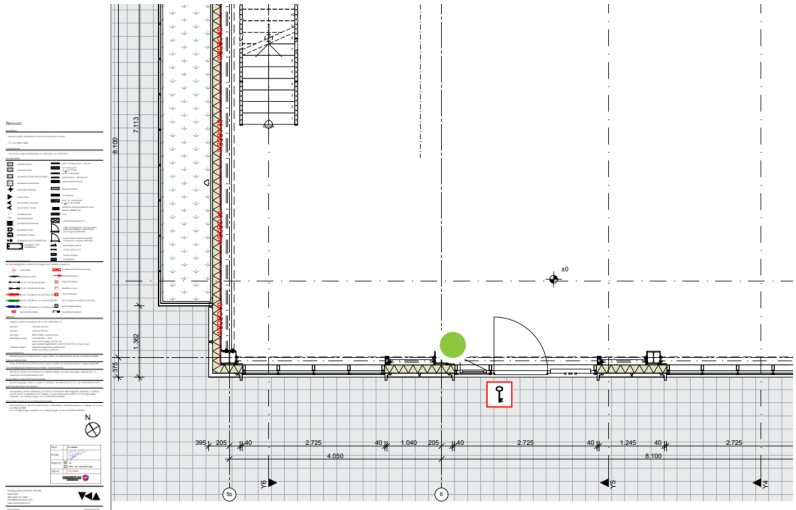
Bijgewerkt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
	Checklistconnectie gewijzigd

OPL271 Zijn er gebreken geconstateerd?

Oplevering

Project	845 Kavel 14	Werkpakket	31 Buitenwandopeningen
Project nr.	845	Workflow	Aluminium kozijnen
Gebouw	BLOK 6	Aanmaakdatum	18 sep 2023, 13:49
Bouwlaag	00 begane grond	Aangemaakt door	Sven Veenboer, Vink Bouw B.V.
Tekening	UO-6 - 0103 00 Begane grond	Verantwoordelijke	(Goedgekeurd, afgerond)
RUIMTES BLOK 6	KNR 6.02		
Checklist	PVO41		
Punt op checklist	Zijn er gebreken geconstateerd?		





18 sep 2023, 13:49
Toegewezen aan Kolf en Molijn

Aangemaakt door:	Sven Veenboer, Vink Bouw B.V.
Gevolmachtigde:	Anne de Vries, Kolf en Molijn
Onderwerp:	Zijn er gebreken geconstateerd?
Beschrijving:	Kunnen de raamboompjes anders gemonteerd worden

1.1, 2023-09-18, 13.48

27 sep 2023, 13:42

Bijgewerkt door:	Anne de Vries, Kolf en Molijn
Beschrijving:	Nee das voor gemonteerd

28 sep 2023, 08:36
Gemeld als afgerond door Kolf en Molijn

Bijgewerkt door:	Anne de Vries, Kolf en Molijn
Nieuwe gevolmachtigde:	Sven Veenboer, Vink Bouw B.V.

30 nov 2023, 15:00
Goedgekeurd door Vink Bouw B.V.

Bijgewerkt door:	Sven Veenboer
Beschrijving:	Andersom laten werken is niet mogelijk, er is gekozen voor een kiep voor draai raam. Het binnen werk is dan leidend

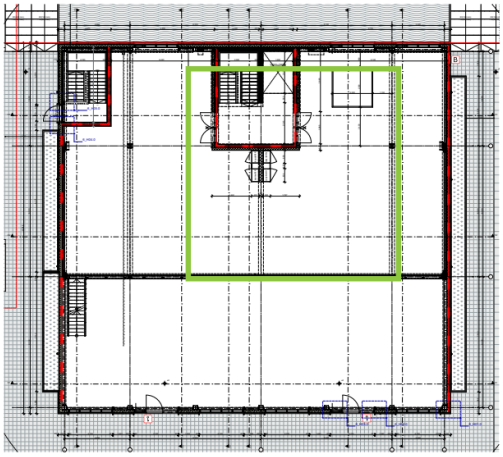
11 dec 2023, 11:40

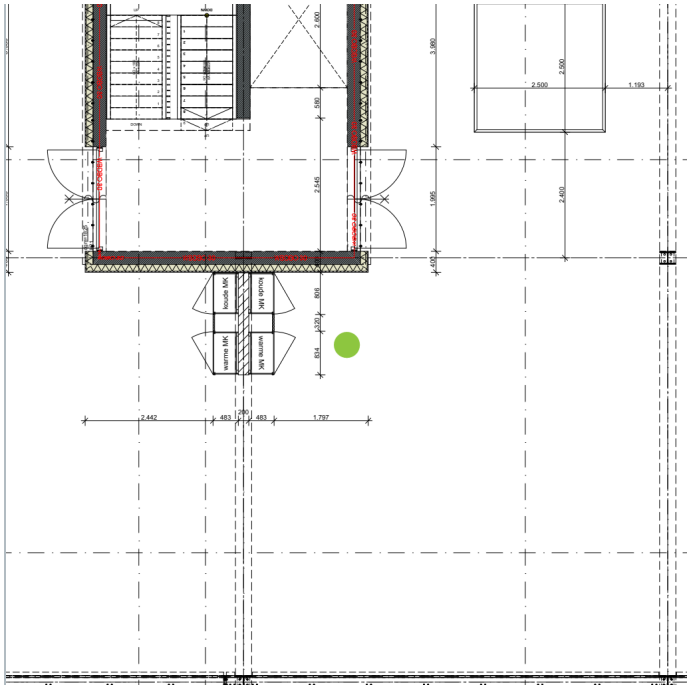
Bijgewerkt door:	Sven Veenboer, Vink Bouw B.V.
	Checklistconnectie gewijzigd

OPL270 Zijn er gebreken geconstateerd?

Oplevering

Project	845 Kavel 14	Werkpakket	55 WKO-installaties
Project nr.	845	Workflow	WKO-installatie
Gebouw	BLOK 6	Aanmaakdatum	18 sep 2023, 13:48
Bouwlaag	00 begane grond	Aangemaakt door	Sven Veenboer, Vink Bouw B.V.
Tekening	UO-6 - 0103 00 Begane grond	Verantwoordelijke	(Goedgekeurd, afgerond)
RUIMTES BLOK 6	KNR 6.01		
Checklist	PVO41		
Punt op checklist	Zijn er gebreken geconstateerd?		





18 sep 2023, 13:48
Toegewezen aan Van Dorp

Aangemaakt door:	Sven Veenboer, Vink Bouw B.V.
Gevolmachtigde:	Hans Hueber, Van Dorp
Onderwerp:	Zijn er gebreken geconstateerd?
Beschrijving:	Druppel lek bij koppeling

1.1, 2023-09-18, 13.46

30 nov 2023, 15:00
Toegewezen aan Van Dorp

Bijgewerkt door:	Sven Veenboer
Beschrijving:	De koppeling is aangedraaid en de lekkage opgelost

30 nov 2023, 15:06
Goedgekeurd door Vink Bouw B.V.

Bijgewerkt door:	Sven Veenboer

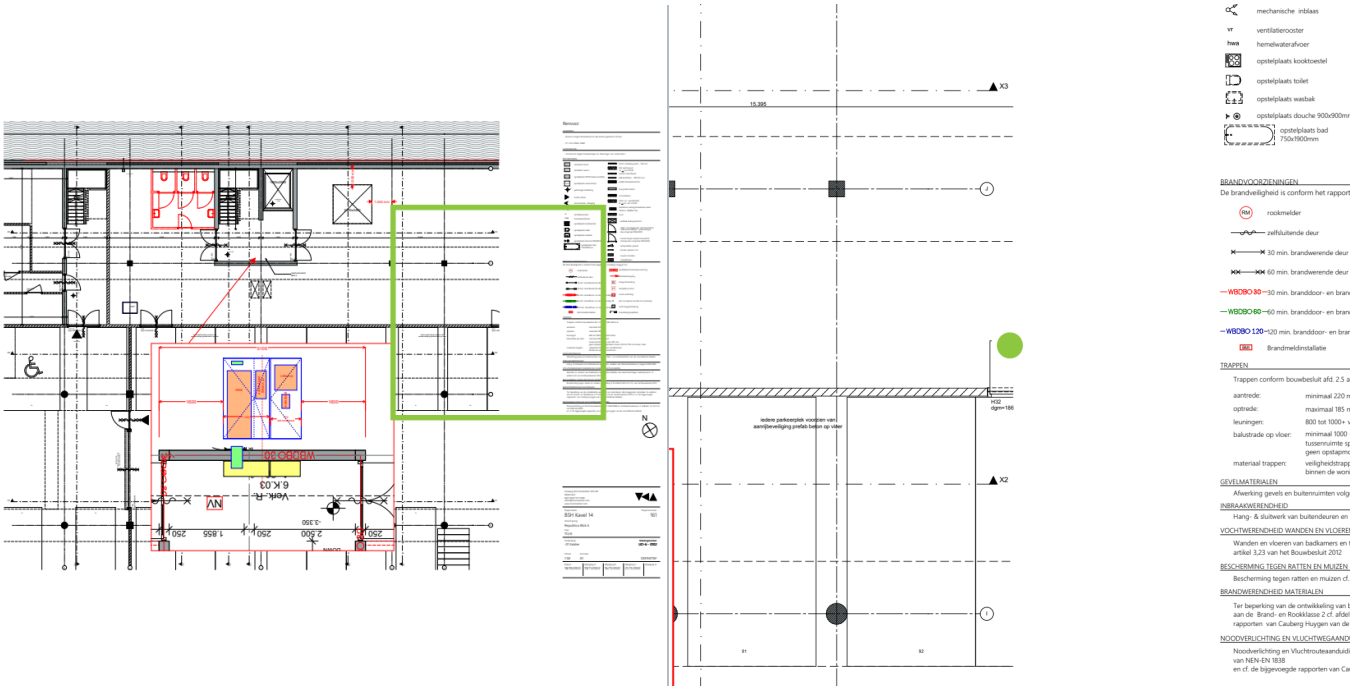
11 dec 2023, 11:40

Bijgewerkt door:	Sven Veenboer, Vink Bouw B.V.
	Checklistconnectie gewijzigd

OPL269 Zijn er gebreken geconstateerd?

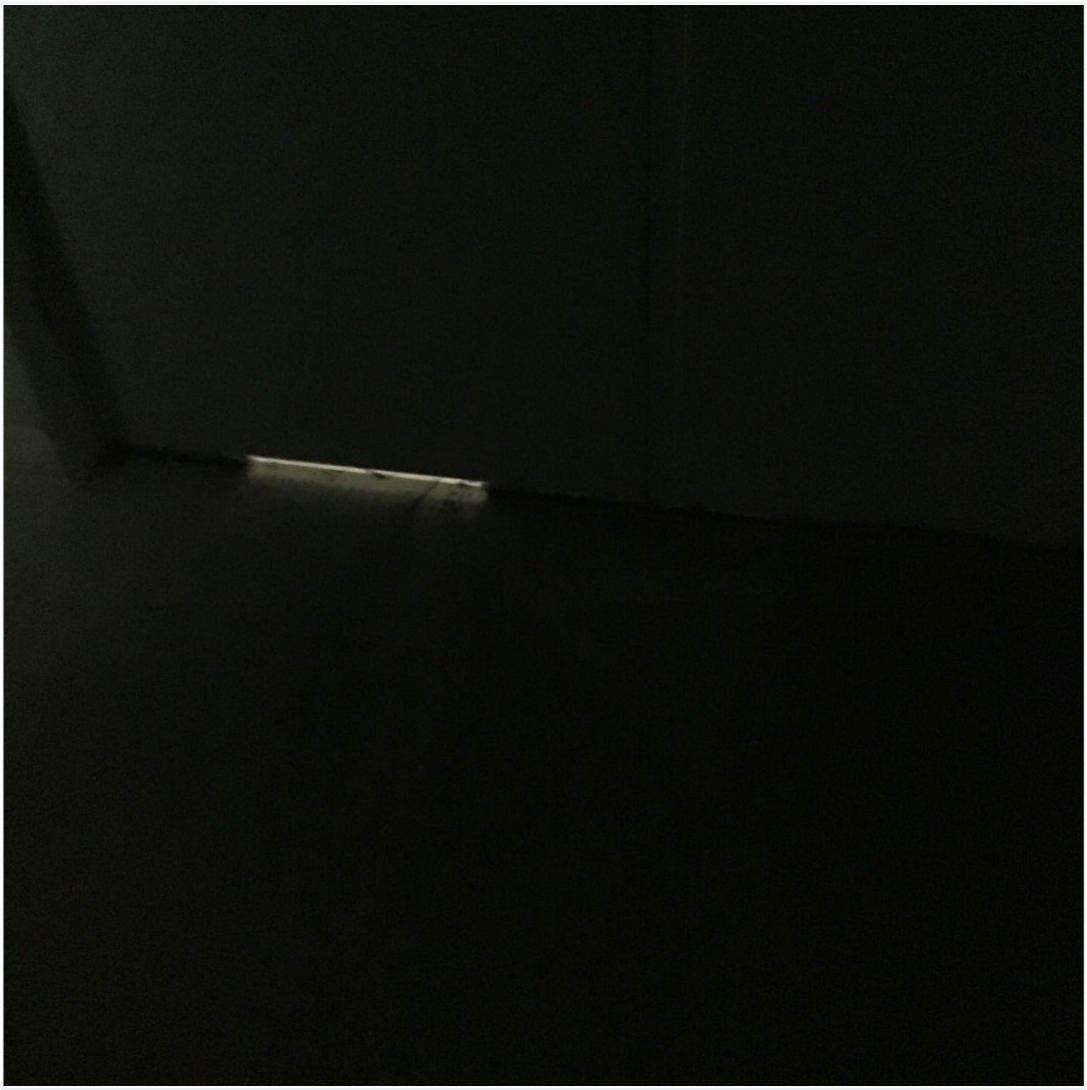
Oplevering

Project	845 Kavel 14	Werkpakket	00 Bouwplaats Algemeen
Project nr.	845	Workflow	Oplevering
Gebouw	BLOK 6	Aanmaakdatum	18 sep 2023, 13:47
Bouwlaag	-1 kelder	Aangemaakt door	Sven Veenboer, Vink Bouw B.V.
Tekening	UO-6 - 0102 -01 Kelder	Vervanger voor	Frank van den Dool, BTB
Checklist	PVO41	Verantwoordelijke	(Goedgekeurd, afgerond)
Punt op checklist	Zijn er gebreken geconstateerd?		

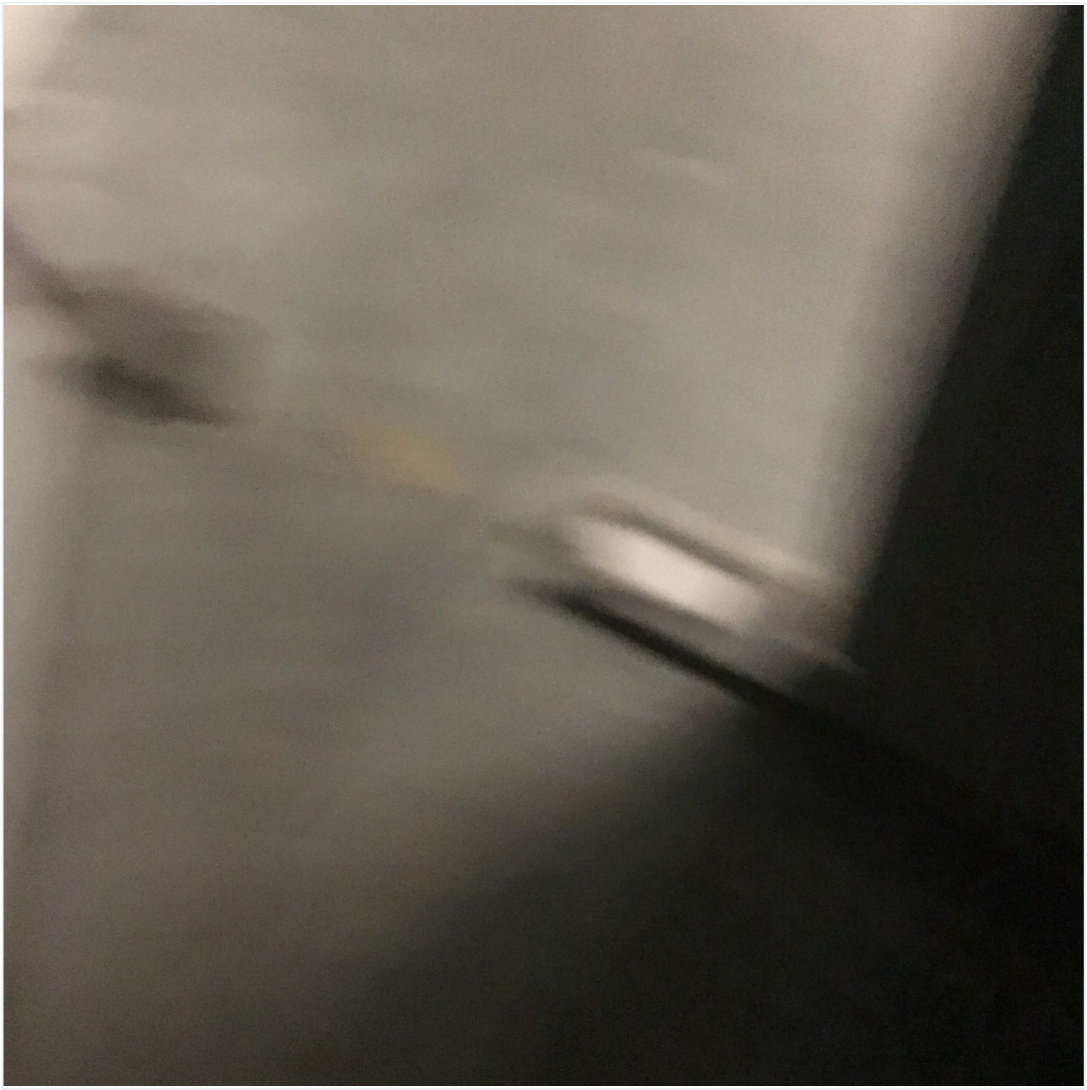


18 sep 2023, 13:47
Toegewezen aan Vink Bouw B.V.

Aangemaakt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
Gevolmachtigde:	Sven Veenboer, Vink Bouw B.V.
Onderwerp:	Zijn er gebreken geconstateerd?
Beschrijving:	Dorpel stuk dranger monteren



1.1, 2023-09-18, 13.44



1.2, 2023-09-18, 13.45

30 nov 2023, 15:01
Gemeld als afgerond door Vink Bouw B.V.

Bijgewerkt door:	Sven Veenboer
Nieuwe gevolmachtigde:	Frank van den Dool, BTB
Beschrijving:	De dorpel moet vervangen worden.

30 nov 2023, 15:02
Goedgekeurd door BTB

Bijgewerkt door:	Sven Veenboer
Vervanger voor:	Frank van den Dool, BTB

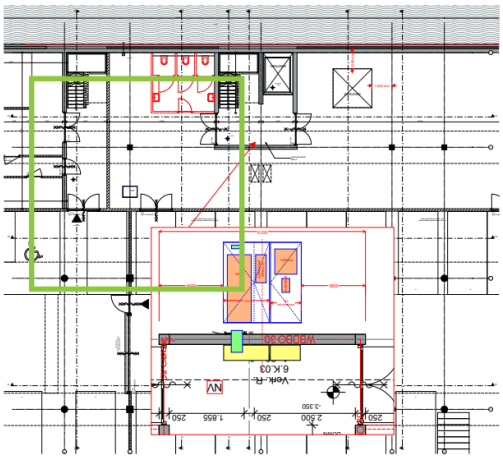
11 dec 2023, 11:40

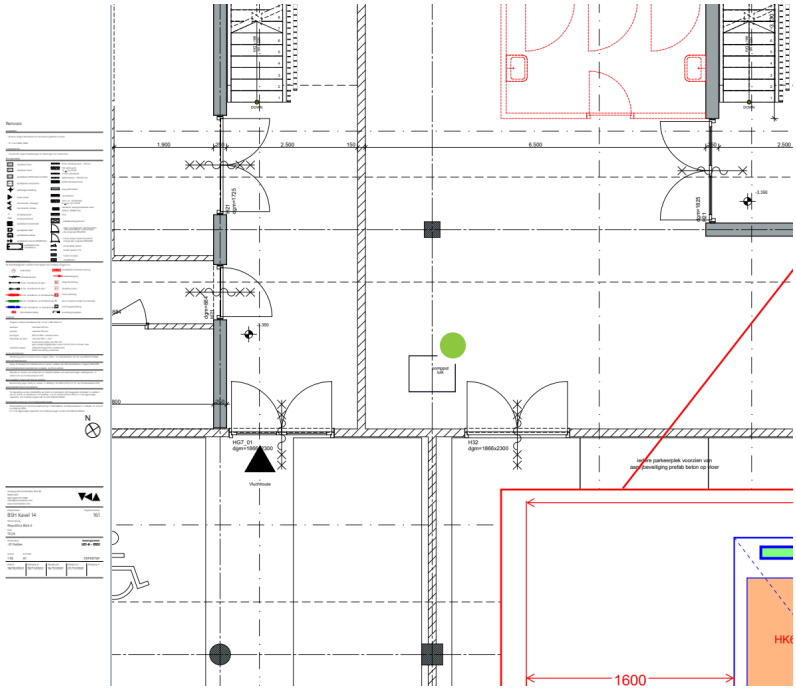
Bijgewerkt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
	Checklistconnectie gewijzigd

OPL268 Zijn er gebreken geconstateerd?

Oplevering

Project	845 Kavel 14	Werkpakket	00 Bouwplaats Algemeen
Project nr.	845	Workflow	Oplevering
Gebouw	BLOK 6	Aanmaakdatum	18 sep 2023, 13:47
Bouwlaag	-1 kelder	Aangemaakt door	Sven Veenboer, Vink Bouw B.V.
Tekening	UO-6 - 0102 -01 Kelder	Vervanger voor	Frank van den Dool, BTB
Checklist	PVO41	Verantwoordelijke	(Goedgekeurd, afgerond)
Punt op checklist	Zijn er gebreken geconstateerd?		





18 sep 2023, 13:47
Toegewezen aan Vink Bouw B.V.

Aangemaakt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
Gevolmachtigde:	Sven Veenboer, Vink Bouw B.V.
Onderwerp:	Zijn er gebreken geconstateerd?
Beschrijving:	Waterdichting maken

1.1, 2023-09-18, 13.36

30 nov 2023, 15:03
Gemeld als afgerond door Vink Bouw B.V.

Bijgewerkt door:	Sven Veenboer
Nieuwe gevolmachtigde:	Frank van den Dool, BTB
Beschrijving:	Waterdichting is aangebracht

30 nov 2023, 15:06
Goedgekeurd door BTB

Bijgewerkt door:	Sven Veenboer
Vervanger voor:	Frank van den Dool, BTB

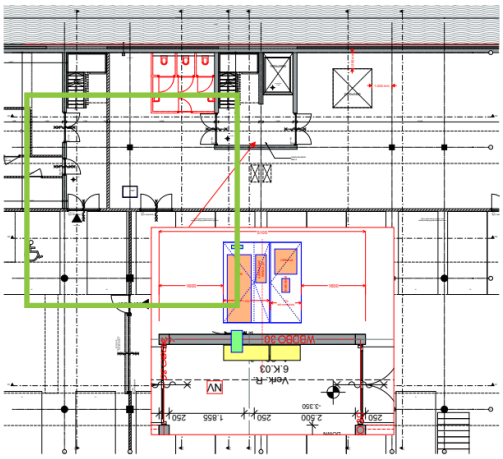
11 dec 2023, 11:40

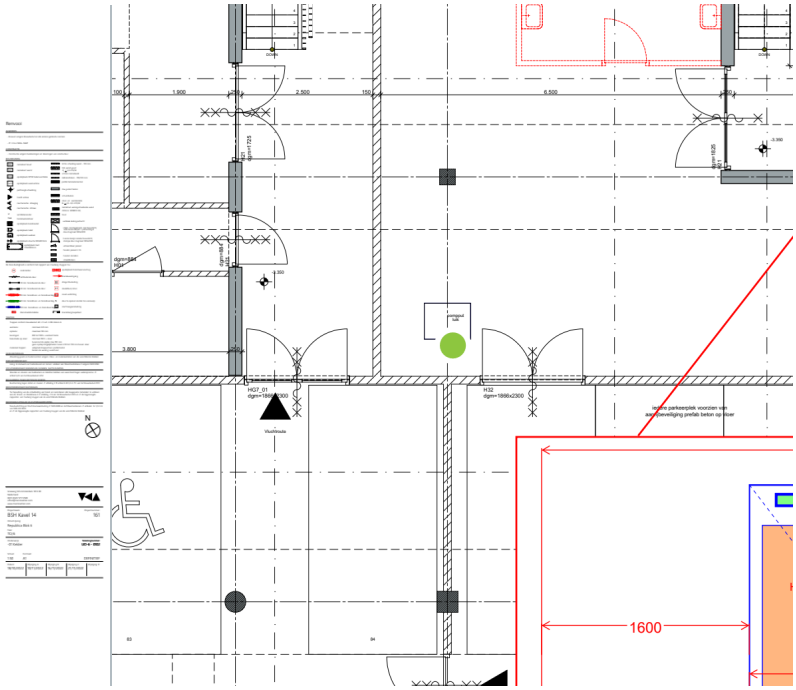
Bijgewerkt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
	Checklistconnectie gewijzigd

OPL267 Zijn er gebreken geconstateerd?

Oplevering

Project	845 Kavel 14	Werkpakket	00 Bouwplaats Algemeen
Project nr.	845	Workflow	Oplevering
Gebouw	BLOK 6	Aanmaakdatum	18 sep 2023, 13:34
Bouwlaag	-1 kelder	Aangemaakt door	Sven Veenboer, Vink Bouw B.V.
Tekening	UO-6 - 0102 -01 Kelder	Vervanger voor	Frank van den Dool, BTB
Checklist	PVO41	Verantwoordelijke	(Goedgekeurd, afgerond)
Punt op checklist	Zijn er gebreken geconstateerd?		





18 sep 2023, 13:34
Toegewezen aan Vink Bouw B.V.

Aangemaakt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
Gevolmachtigde:	Sven Veenboer, Vink Bouw B.V.
Onderwerp:	Zijn er gebreken geconstateerd?
Beschrijving:	Waterdicht af laten werken

1.1, 2023-09-18, 13.28

30 nov 2023, 15:04
Gemeld als afgerond door Vink Bouw B.V.

Bijgewerkt door:	Sven Veenboer
Nieuwe gevolmachtigde:	Frank van den Dool, BTB
Beschrijving:	Waterdichting is aangebracht, lekkage opgelost

30 nov 2023, 15:06
Goedgekeurd door BTB

Bijgewerkt door:	Sven Veenboer
Vervanger voor:	Frank van den Dool, BTB

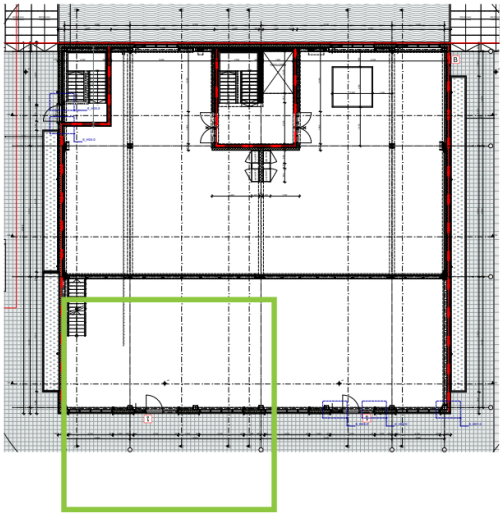
11 dec 2023, 11:40

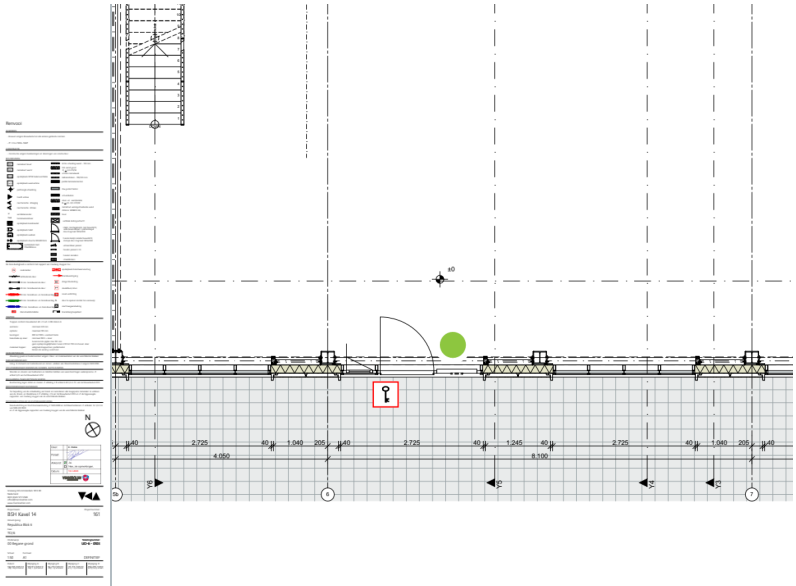
Bijgewerkt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
	Checklistconnectie gewijzigd

OPL266 Zijn er gebreken geconstateerd?

Oplevering

Project	845 Kavel 14	Werkpakket	00 Bouwplaats Algemeen
Project nr.	845	Workflow	Oplevering
Gebouw	BLOK 6	Aanmaakdatum	18 sep 2023, 13:34
Bouwlaag	00 begane grond	Aangemaakt door	Sven Veenboer, Vink Bouw B.V.
Tekening	UO-6 - 0103 00 Begane grond	Vervanger voor	Frank van den Dool, BTB
RUIMTES BLOK 6	KNR 6.02	Verantwoordelijke	(Goedgekeurd, afgerond)
Checklist	PVO41		
Punt op checklist	Zijn er gebreken geconstateerd?		





18 sep 2023, 13:34
Toegewezen aan Vink Bouw B.V.

Aangemaakt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
Gevolmachtigde:	Sven Veenboer, Vink Bouw B.V.
Onderwerp:	Zijn er gebreken geconstateerd?
Beschrijving:	Brievenbussen missen

1.1, 2023-09-18, 13.24

30 nov 2023, 15:04
Gemeld als afgerond door Vink Bouw B.V.

Bijgewerkt door:	Sven Veenboer
Nieuwe gevolmachtigde:	Frank van den Dool, BTB
Beschrijving:	Brievenbussen zijn aangebracht

30 nov 2023, 15:05
Goedgekeurd door BTB

Bijgewerkt door:	Sven Veenboer
Vervanger voor:	Frank van den Dool, BTB

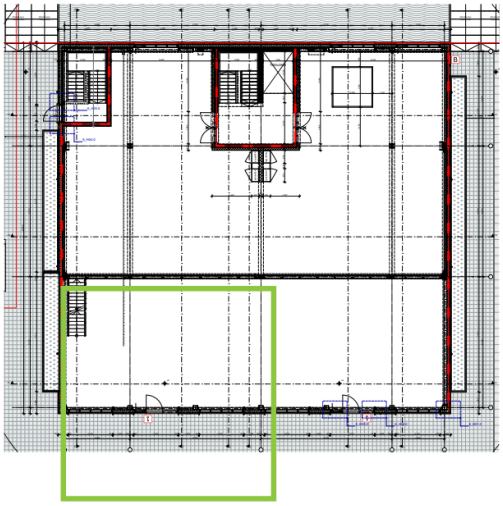
11 dec 2023, 11:40

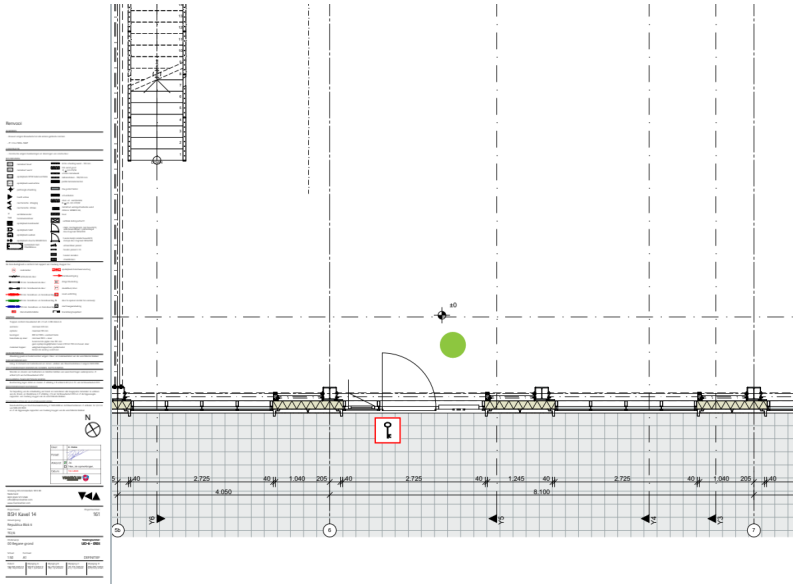
Bijgewerkt door:	Sven Veenboer, Vink Bouw B.V.
Vervanger voor:	Frank van den Dool, BTB
	Checklistconnectie gewijzigd

OPL265 Zijn er gebreken geconstateerd?

Oplevering

Project	845 Kavel 14	Werkpakket	31 Buitenwandopeningen
Project nr.	845	Workflow	Aluminium kozijnen
Gebouw	BLOK 6	Aanmaakdatum	18 sep 2023, 13:34
Bouwlaag	00 begane grond	Aangemaakt door	Sven Veenboer, Vink Bouw B.V.
Tekening	UO-6 - 0103 00 Begane grond	Verantwoordelijke	(Goedgekeurd, afgerond)
RUIMTES BLOK 6	KNR 6.02		
Checklist	PVO41		
Punt op checklist	Zijn er gebreken geconstateerd?		





18 sep 2023, 13:34
Toegewezen aan Kolf en Molijn

Aangemaakt door:	Sven Veenboer, Vink Bouw B.V.
Gevolmachtigde:	Anne de Vries, Kolf en Molijn
Onderwerp:	Zijn er gebreken geconstateerd?
Beschrijving:	Deur afstellen

1.1, 2023-09-18, 13.23

28 sep 2023, 07:55
Gemeld als afgerond door Kolf en Molijn

Bijgewerkt door:	Anne de Vries, Kolf en Molijn
Nieuwe gevolmachtigde:	Sven Veenboer, Vink Bouw B.V.

30 nov 2023, 15:05
Goedgekeurd door Vink Bouw B.V.

Bijgewerkt door:	Sven Veenboer
Beschrijving:	Beide deuren op de begane grond zijn nagesteld

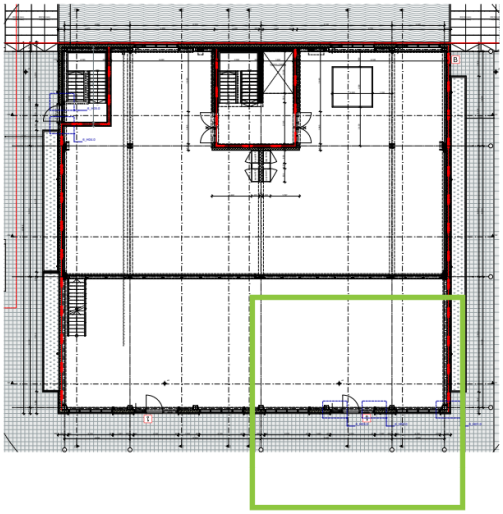
11 dec 2023, 11:40

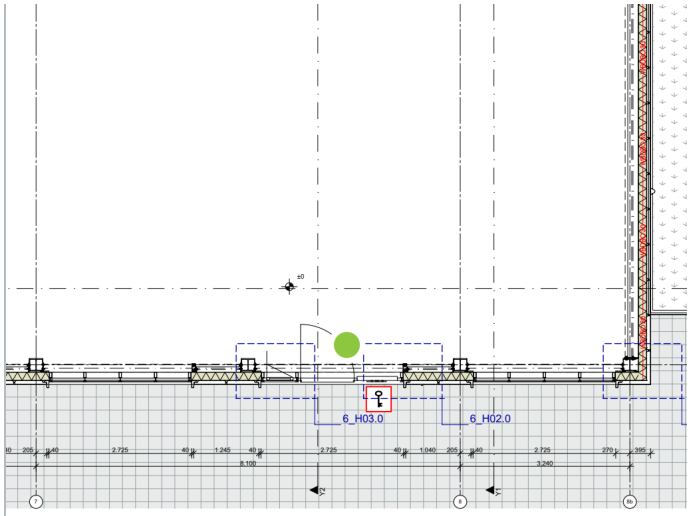
Bijgewerkt door:	Sven Veenboer, Vink Bouw B.V.
	Checklistconnectie gewijzigd

OPL264 Zijn er gebreken geconstateerd?

Oplevering

Project	845 Kavel 14	Werkpakket	31 Buitenwandopeningen
Project nr.	845	Workflow	Aluminium kozijnen
Gebouw	BLOK 6	Aanmaakdatum	18 sep 2023, 13:33
Bouwlaag	00 begane grond	Aangemaakt door	Sven Veenboer, Vink Bouw B.V.
Tekening	UO-6 - 0103 00 Begane grond	Verantwoordelijke	(Goedgekeurd, afgerond)
RUIMTES BLOK 6	KNR 6.02		
Checklist	PVO41		
Punt op checklist	Zijn er gebreken geconstateerd?		





18 sep 2023, 13:33
Toegewezen aan Kolf en Molijn

Aangemaakt door:	Sven Veenboer, Vink Bouw B.V.
Gevolmachtigde:	Anne de Vries, Kolf en Molijn
Onderwerp:	Zijn er gebreken geconstateerd?
Beschrijving:	Afstellen entree deur

1.1, 2023-09-18, 13.22

28 sep 2023, 07:56
Gemeld als afgerond door Kolf en Molijn

Bijgewerkt door:	Anne de Vries, Kolf en Molijn
Nieuwe gevolmachtigde:	Sven Veenboer, Vink Bouw B.V.

30 nov 2023, 15:05
Goedgekeurd door Vink Bouw B.V.

Bijgewerkt door:	Sven Veenboer
Beschrijving:	Beide deuren zijn nagesteld

11 dec 2023, 11:40

Bijgewerkt door:	Sven Veenboer, Vink Bouw B.V.
	Checklistconnectie gewijzigd