

Site and Civil Engineering Department Site consolidation and new buildings programme Campus Services

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Site and Civil Engineering Department

The Site and Civil Engineering (SCE) Department manages and develops CERN's real estate assets and infrastructures in agreement with CERN's scientific strategy, as well as all the services related to the caretaking and operation of the CERN site.



SCE Organization today

	DH: Ma	Departmental Operation and Development [DOD]			
Site Asset Management [SAM]	Project Portfolio Management [PPM]	Service Managemer [SMS]	nt and Support	Services and Supply Cha [SSC]	
GL: Pierre Cardon DGL: Michael Poehler	GL: Natacha Lopez DGL: Pieter Mattelaer	tacha LopezGL: Gyorgy Balazster MattelaerDGL: Isabel Fernandez		GL: Cedric Garino DGL: Lisa Bellini	
Technical Office and Geomatics [TG] SL: Michael Poehler DSL: Youri Robert				Campus services [CS] SL: Gilles Bollinger DSL: Gregoire Mathias	
Civil Engineering [CE] SL: Alejandro Martinez DSL: Christophe Biot				Supply Chain [SC] SL: Lisa Bellini	
Infrastructure [IN] SL ad interim: Pierre Cardon DSL: Guillaume Rouge					
Future Studies [FS] SL: John Osborne					

CERN Campus

- 590 ha (220 fenced)
- 2 main sites and 15 satellite sites
- 670 buildings from 10 m² to 20.000 m²
- 65% built before the 70's
- 70 km tunnels and 80 caverns
- 30 km roads
- 1000 km technical galleries and trenches

- 7000 persons/daily
- 490 hostel rooms
- 8500 working places
- 4300 parking places in Meyrin, 1400 in Prévessin
- 25000 daily movements to- and inter-sites
- Public transport links in CH, not in FR



2021-2025

Unique opportunity to shape the site

The 2022-2031 programme consists of an allocation of 549.5 MCHF, shared between the construction of new buildings (51%), an increased programme for the renovation and maintenance of existing infrastructures (42%), and a dedicated programme to renovate CERN's extensive network of technical galleries (7%).

Strategic plan at long-term, regularly updating and aligning to evolutions in CERN's scientific program and future projects. And, protecting the site by a reflected interplay between preservation and modernization.

- Strategy based on 3 pillars:
 - Urbanism and Environment
 - Strategy for space/land management
 - Services adapted to CERN's diverse population

CERN Masterplan 2040



<u>CERN's Masterplan 2040</u> est un document destiné à informer et à inspirer un dialogue raisonné et significatif sur la gestion et la mise à jour du site du CERN. Il s'agit donc d'un document clé pour guider et améliorer la gestion et l'utilisation du sol et de l'espace au CERN.



CERN Masterplan 2040



81,82

Buildings programme timeline





Progress to date reducing **heating's** carbon emissions



CERN Sites

Efforts towards a Space Management Policy

Collaborative effort: dedicated Working Groups integrating the diverse CERN community

Efforts towards a Space Management Policy

Principles

- 1. Space as a Valuable Resource: The physical space required for CERN personnel to work is a precious resource that should be managed similarly to financial and personnel resources.
- 2. Applies to All Personnel: Space management applies to all persons working at CERN, regardless of status.
- **3.** Equitable Allocation: Space belongs to CERN and should be allocated equitably and transparently to activities and services based on a justified and continued need, and subject to regular reviews.
- 4. Adaptability to Changing Needs: Space allocation should adapt to the changing needs of activities and services, while considering the needs of others, ensuring an appropriate and equitable distribution.
- 5. Shared Use to Avoid Duplication: Wherever possible, space should be shared to avoid duplication of surfaces, equipment, and services.
- 6. Applicability across CERN space: Space management applies to all existing and future physical spaces: offices, conferences and meeting rooms, technical and operational workspaces such as laboratories, workshops, assembly halls, etc., storage areas, and common spaces. It is not concerned with underground accelerators, experiment equipment, beamlines, technical galleries, tunnels, and roads. Although not directly involved, space management has a vested interest in site layout, site development (Master Plan), and building maintenance to ensure safety, hygiene, and well-being are upheld.

Objectives

- 1. Maximize Space Utilization: Periodic reviews of space allocation are conducted to confirm or reallocate space, ensuring that CERN's priorities and needs are continually met.
- 2. Efficient Use of All Spaces: Space management ensures optimal use of all types of physical spaces to support the organization's evolving requirements.
- **3. Transparent Space Allocation:** Space allocation is done transparently at all levels in the Organization with regular reviews to ensure consistency and equity.
- 4. Publication of Guidelines: Guidelines are published to ensure fair and equitable space allocation across departments and units, considering HSE guidelines and rules, as well as the roles, functions and work models of the concerned personnel.
- 5. Stakeholder in Development and Maintenance: space management has a direct link with site development (Master Plan).
- 6. Safety and Security Prioritization: Security of people and goods and safety are major drivers of space management and guidance.

2024 Campus Operations Sustainability Highlights

SCE-SAM Organization today

MAINTENANCE/OPERATION and CONSOLIDATION

• Emergency intervention

Site Consolidation - Technical assessment (STRATUS)

STRATUS tool

As a real state assets management tool, STRATUS is used to monitor the buildings' conditions and keep updated data about the buildings' construction elements renovation optimal due dates, as well as a very rough preliminary renovation cost estimate.

Overall conditions of CERN buildings

Example : Building 13

Evaluation de l'objet | Année d'évaluation 2023 Etat parc Immobilier CERN 01/12/2022

N° de bâtime

Manager d'obiet

Manager de portefeu

Rue/N

Libre3

Batiment bureaux laboratoires

Série d'éléments de c Bât. bureaux complex Genre de bâtimen 06 Commerce et admi Type de bâtiment 03 Immeubles de bureaux simple Standard 1965 12400 m3 3641 m2 6676 kCHF | Ann 1.13 0 kCHF | Année 0 0 kCHF | Année 0

Site de MEYRIN

1217 Meyrin

Schweiz

admin

Etat constructif

Echéance de réfection

Frais de maintenance et de réfection

Stratégie alour d'ae Facteur de correctio Parties non assurée Propriété de tiers (

Date de mu

Saisie de données sur le terrair

Eléments de construction	Descriptif	Valeur d'utilisation	Sollicitation	Résistance	Ann ée Evaluation	Evaluation	
Gr. oeuvre massif	Structure en BA				2012	0.90	2
Gr. oeuvre autre					2012	0.00	
Toit en pente					2012	0.00	
Toit plat	Etanchéité bitumineuse,				2012	0.93	
Façades	Plaques Eternit, béton peint				2012	0.80	1
Fenêtres	Hétérogène.				2012	0.75	
Install. de courant fort					2012	0.84	2
Install. de courant faible	DI				2012	0.87	
Générateur de chaleur	Sous-station renovée en 2022				2022	1.00	
Distribution de chaleur	Radiateurs				2012	0.75	
Centrale installation de clim.	Refroidisseur sur toiture (2012), sous-station				2012	0.95	
Réseau distrib. install. de clim.	Refait en 2012				2012	0.95	
Sanitaires	Installations sanitaires renovées en 2011				2012	0.95	
Install. de transport	Monte-charge				2012	0.75	
Aménag. int. substance	Hétérogène.				2012	0.80	1
Aménag. int. surfaces	Hétérogènes.Faux plafond et peintures circulation refait en 2012				2013	0.86	
Dispon. long terme					2012	0.00	
Dispon. moyen terme					2012	0.00	
Dispon. court terme					2012	0.00	
Total							10

Travaux en sous-sol en cours. Travaux installations froide en cours (pour laboratoire). Froide probablement aussi pour bâtiment 1

Date d'impression: 16.01.2023, 09:37 | Alejandro Martine Page 1/ stratus 🤃

Site Consolidation - Technical assessment (STRATUS)

STRATUS tool - input for each building

Données de base Elér	ments de	construct	ion Ima	iges historique Stade de	e l'élaboration Documentation			
N° de bâtiment	2885			Désignation	Batiment pour experience			
Identification	SX8			Rue/N°	Site de POINT 8 LHC/LEP			
Manager d'objets	admin 💌			NPA	01210			
Manager de portefeuille	admin 💌			Localité	Ferney-Voltaire			
Année de construction			1988	Pays	France 💌			
Monnaie		CHF	•	Série d'éléments de construction	Halle de product.			
			Année	Genre de bâtiment	03 Industrie			
Valeur d'assurance	kCHF	3839	2022	Type de bâtiment	06 Halles industrielles			
Facteur de correction		0.83		Departement	EP			
Parties non ass. (+)	kCHF	0	0	Libre1	Machine 🔹			
Propriété de tiers (-)	kCHF	0	0	Libre2	•			
Volume	m3 SIA	19231		Libre3	-			
Surface	m2	1553		Libre4	-			
Saisie effectuée par	Wolfgang	Bastien	•	Mutation effectuée par	admin 💌			
Date de saisie	11.05.2021			Date de mutation				
	Depuis le début de l'anné			Stratégie	Priorité moyenne 🔹			
Ne pas recalculer			0					

Données de base	Eléme	ents de	cons	tructio	on Im	ages	histo	rique	Stade de l'	élaboration
Nom élément	1.00	0.95	0.90	0.85	0.80	0.70	0.60	0.50	0.20	
Elément de constru	uction		Des	criptif		Année	e A/N	Ant.	Sollicitation	Résistance
Gr. oeuvre massif		Structu	re BA :	radier		2021	0.95	8	• • •	• • •
Gr. oeuvre autre		Structu	re meta	il		2021	0.93	18	• • •	•
Toit en pente		Revête	ment to	le profil	е	2021	0.90	1	• 🔾 •	• • •
Toit plat		Etanch Verrière	éité bitu e endor	umineus nmage	e + grav	^{/i€} 2021	0.85	6	• 🔵 •	• • •
Façades		Casset Partie p	te méta polycari	llique v ponate (entile + j en mauv	oa ai 2021	0.85	15	• () •	• • •
Fenêtres		PVC d'	origine	double	vitrage	2021	0.75	2	• () •	• • •
Inst. électriques		Elemer	nt usuel			2021	0.90	0	• () •	• . •
Générateur de chaleur						2021	0.00	0	• 🕛 •	• .
Distribution de chaleur		Réseau	u de dis	tributior	n 0.85	2021	0.85	0	• () •	• .
Sanitaires						2021	0.00	0	• () •	• • •
Inst. techniques		Clim : r	nonoble	oc d'orig	ine 0.6	2021	0.60	0	• . •	• • •
Aménag. int. substanc	е	Cloisor	n amovi	ble + Fa	iux plan	ct 2021	0.83	10	• () •	• .

Site Consolidation - Technical assessment (STRATUS)

Condition of Assets Stratus Update 2023 451 buildings

- < 0.61 : Candidate to demolition
- 0.61 0.68 : Candidate to global renovation
- 0.69 0.76 : Candidate to partial renovation
- 0.77 0.84 : Candidate to deep maintenance/light renovation
- 0.85 1 : Good status
- Not classified

Site Consolidation

Strategy

Entry into the SITE CONS programme

Stratus outcome (<0.8) x 3S Factorization:

- Strategy
- Safety
- Sustainability

Quarterly Steering committee – Decision gate

Capital investment plan

Site Maintenance

INFOR EAM

E DETAILS			
Description*	Peinture		
Equipment*	K\$-4-MUR-PEINTURE 4 - MUR PEINTURE		
Location	4/R-017 LABORATOIRE		
Dep./Service Unit*	KFM63 GENIE CIVIL S249 - Peinture, platrerie & revetement de	sols	
Туре*	T1 - Work - Various, Divers		
Status*	T - Completed, Terminé		
Priority	M - Moyenne		
Class	KT1-M Travaux de Maintenance		
Standard WO	K-T1M Travaux de Maintenance		
Budget Code	31513 Building maintenance		
Target Value	1543.600000		
Parent Work Order			
Service-now Number	RQF2541025		
EDH Doc. Number	10137139		
Warranty			
Downtime Hours			
SCHEDULING			
Created By	SNOWEAM Service-Now to Infor	Date Created	25-Jan-2024
Reported By	74174 CASENOVE SONIA		

GIS

• GIS layers for roofs, buried networks, roads and green spaces maintenance

Services and Supply Chain mandate

The Services and Supply Chain Group (SCE-SSC) provides the CERN community with high standard campus experience and optimal supply chain execution by offering the following rationalized, efficient, and transparent services:

- Campus Services (CS)
 - Person mobility: mobility center, shuttle busses, cars, bicycles
 - Housing: managing CERN's hotel, CERN's apartments, Foyer Schuman's reservations
 - o Catering: restaurants, cafeterias, vending machines, water fountains (network-fed)
 - o Cleaning & waste management in surface buildings and undergrounds premises, Special waste
- Logistics
 - Shipping: goods transport organization
 - o Goods and material logistic flow including goods reception, internal distribution and internal removals
 - o Mail distribution: diplomatic mail, inbound, outbound and intra flows
 - Storage of accelerator equipment
 - VAT, fiscal, customs, export control advisory
 - o Installation: removals, special car plates, diplomatic privileges
- Supply Chain
 - o CERN stores warehousing operations including central stores, raw material workshop inbound and outbound
 - o Standardization of materials
 - o Replenishment of standard materials

Catering @CERN

<u>1 three-building hotel</u>

450 bedrooms (single or twin-bedded room, with desk and closet (no fridge, no tv) 3 shared kitchen & laundry rooms 14 chf – 58 chf per person and per night 70% annual occupancy rate 7 nights average lenght of stay 50/50 booking engine / direct booking Operated by ext. company under CERN supervision.

+ 150 bedrooms reserved for CERN in external residence

13 furnished apartments

< 6kms from CERN Studio, 1 or 2 bedrooms 1230 chf – 2533 chf per month 85% annual occupancy rate Operated by external company under CERN supervision

Cleanliness, Waste & Recovery

Cleaning Service

- 600 cleanable buildings across all sites
- Total cleanable area of 340,000 m²
- Surface and underground areas (including offices, public areas, workshops, warehouses, technical zones, with radioprotection)

Recuperation and Sales

Recycles and sells all equipment that the CERN no longer needs, such as outdated or surplus items

Conventional waste service

Ensure contract management

Ext. company

Performs collection services and provides staffing

CERN smart mobility

Your individual commitment will allow us to go further.

While considering the specific mobility constraints of our activities and our sites, let's fill our journeys with a dimension of eco-responsibility, in line with CERN's commitments to environmental protection. Together, let's accelerate the mobility of tomorrow.

Bicycle or electric scooter. Quickly by the handlebars.

CERN has a fleet of self-service electric bicycles and scooters, which can be used free of charge to travel within or between the Meyrin and Prévessin sites. Install the Mobility Parc application on your smartphone, locate a nearby vehicle, and off you go!

Available vehicules 80 20 Usable electric electric for 2 hours bicycles z4/7

 DID YOU KNOW?
 SO regular biles are evailable all year round on site. During the summer months, they can be rented for 1 CHF per day, so that cyclists can enjoy them from monting to evening, and also for their private trips.

CERN smart mobility

in figures.

Do you come by bike? Showers and parking are provided.

CERN brings together a large community of cyclists who commute to work every day using leg strength. They can count on an infrastructure adapted to their needs: 68 showers, 2,600 parking spaces, including 1,100 covered shelters, 15 repair stations, reserved lane, and dedicated access doors on the various sites.

Find friends and resources

The CERN cycling community bike-to-cern.web.cern.ch Diver Pumps locations map maps.cern.ch/mobility/pump

Browers locations map maps.cern.ch/showers P

- \int_{-}^{+} - Every set, the Organization engages in the Bacevoor challenge in 10233, 1011 cyclests from the Organization took up the challenge. For the organization took we have largest

-

participant in French-speaking Switzerland

Internal bus shuttles. Close to your office.

In you choose memanoa an account of the functionary for your trips between sites, you help reduce the traffic load on the local road network as well as emissions harmful to the environment and the climate. Take advantage of the journey to work or relax. Our 4 lines will take you safely to your destination.

Mobility Centre. Your internal mobility partner.

facilitate the transfer from one mode of transport to other, the Mobility Centre brings together in one place a mobility services offered to all CERN users: socoters, cycles and cars on loan, rental or salf-service.

An extension of the second sec

The Mobility Centre is located near entrance A of the Mobility Centre is located near entrance A of the Merule of

Rationalization of CERN's vehicle fleet

Sorting of coming mails from french and swiss posts : approx 300 mails per day

Delivery of mail – 6 rounds in Meyrin and Prevessin + 1 for the LHC points (when needed)

Outgoing mail collection, franking and sending around 1'300 per month

Around 2'400 inbox in total on CERN sites

Invoices and pension fund mails sorting every morning

Mass mailing preparation and sending around 3'000 per month

Preparation of shipment by express mail (documents only) requested through Snow

Diplomatic documents transportation twice a week (7-8 requests per week)

Security Service

3 Staff members

Frame service contracts

Head of Security Service Deputy Head of Security Service Video analyst

Guards

Personnel/ visitors Registration Locks and Keys service Fences maintenance

CERN security in figures (2023)

1,487 cameras including 1,031 live, 229 thermal

7 sonorized sites (HP)

95 intercoms

740 buildings

22 km of fencing

627 video investigations (resolution rate 94%)

66 theft reports (including 31 on site)

4 VVIP visits: Presidents of Switzerland, France, and Chile and SGW inauguration

169 VIP visits

Site security: a combination of risks and constraints

- CAMPUS
- Functioning as a small town (bank, restaurants, hotels, cafeterias, etc.)
- Controlled perimeter (intruders)
- Traffic (VL, PL, pedestrians, bicycles, scooters, etc.)
- Incivility /disrespects (accidents, theft, demonstrations, sabotage, etc.)
- Negligence or improper behaviour (inadequate parking, unattended vehicle, abandoned luggage...)

- ш Electricity, SIT
 - Gas, •
 - Beam,
 - Radioactivity,
 - Chemical risks, •
 - ...etc.
- **NDUSTRIAI** but
 - Not a CEVESO or OIV. Classified site.

regularly on site.

Site security: principles, thoroughness and adaptability

MP

Essential actions to maintain fluidity.

Campus philosophy. Increasing number of users/people on site.

Non-intrusive controls.

70 years of construction activity

> Diversity of controls and mobility options (vehicles, shuttles, 2 wheels, pedestrians...)

Preparation and trainings to face security events, including crisis management. Large number of buildings/ laboratories, with various purpose and occupancy.

Physical

protection

measures

adapted to CERN

geographical

environment.

Resilience (Increase efforts and risks for offenders). Close collaboration with the Host States security services (CH and FR).

Secured Site

Tools and solutions

