

just  
in

case

*Who ordered, Who poured, Who paid?*

Bénédict Wasserfallen



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# Just in Case

The shaky grounds of Switzerland's subsidized bunker building frenzy and its consequences.

*Who ordered, Who poured, Who paid?*



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To Hannah, Maxime and Maman.



# Introduction

In 1951, the Swiss Confederation began to mobilize resources for the establishment of a national civil bunker network. Only 12 years later, this aspiration was codified into the country's federal legislation. From 1966 on, for every new dwelling, a precisely normed (and subsidized) reinforced concrete space had to be built.<sup>1</sup> As of 2016, the private and public protective shelter coverage directly resulting from that decision exceeded 114% of the Swiss population.<sup>2</sup>

Disconnected from the wider public awareness, this heavily reinforced concrete infrastructure has settled into the hidden undergrounds of Swiss homes. However, recent crises have reignited political interest in this infrastructure – with the federal government deciding to sustain the bunkers through renovations and new funding.<sup>3</sup> As in the early 1960s, such measures were justified based largely on hypothetical scenarios of mass bunker necessity in future conflict.

This theoretical statement aims to contribute to the current discussion about the public interest in maintaining or adapting the Swiss civil shelter strategy. It will do so by asking: How did the current bunker norms emerge? Who benefitted? And who paid for it in the end?

1. Bundesgesetz über die baulichen Massnahmen im Zivilschutz, 4 October 1963, BBl 1963 II, 761-767. [https://www.fedlex.admin.ch/eli/fa/1963/2\\_761\\_746\\_1374/de](https://www.fedlex.admin.ch/eli/fa/1963/2_761_746_1374/de).

2. Silvia Berger Ziauddin, "(De) territorializing the Home: The Nuclear Bomb Shelter as a Malleable Site of Passage," *Environment and Planning D: Society and Space* 35, no. 4 (2017): 675.

3. Änderungen der Zivilschutzverordnung (ZSV), 22 October 2025, AS 2025 657, <https://www.fedlex.admin.ch/eli/oc/2025/657/de>.

The work is structured in four main chapters.

Firstly, it examines the history of shelters and the emergence of their construction mandate in public and political debate. By analysing the 1950s and 1960s legislators and lobbies it will identify who decided on their creation.

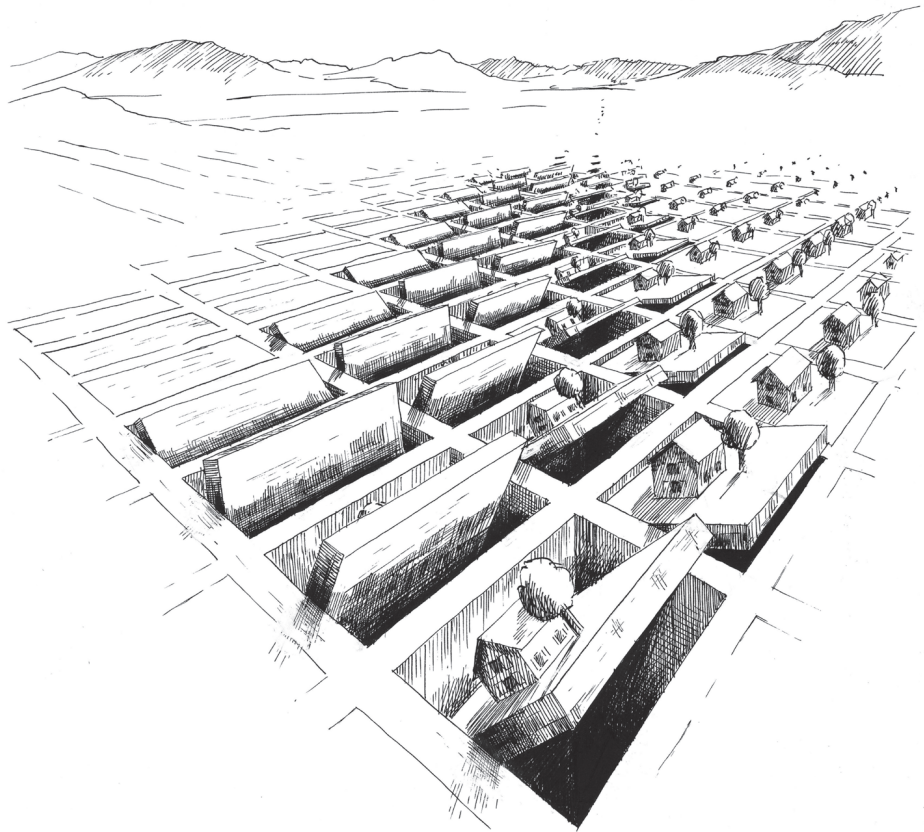
The second chapter examines the process from legislation in 1963 to the first precise norms in 1966.

The third part illustrates the building norms prescribed for bunker construction, the required materials and technical standards to be implemented. The same section also highlights the historical actors within the playing field created by these norms, as well as development up to the present day.

Finally, a case study for each set of norms is examined by drawings and calculations to estimate material and resource use at the larger scale, producing numbers and approximate cost of the past sixty construction years, complemented by previous research and estimations.

The theoretical statement's conclusion considers the investigated factors to thoroughly answer the following questions:

Who ordered, Who poured, Who paid?



F1) Unnamed Drawing, Bernhard Chiquet, 1988



Third time's the charm

## *The political push towards the Federal Office for Civil Protection*

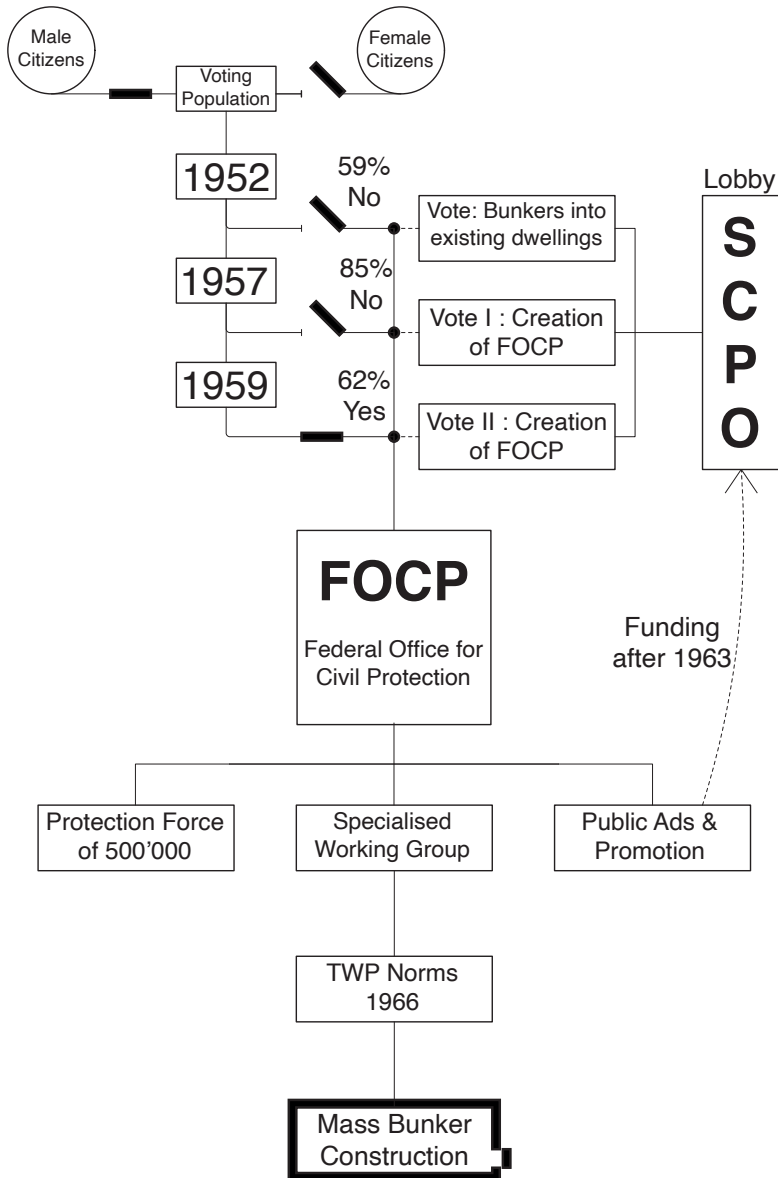
This chapter examines the historical process that set the groundwork for the emergence of Swiss bunker construction laws in the mid-20th century. The background of important legislators and lobbies are examined and laid out in charts to emphasize notable influences and connections.

As Switzerland emerged from the long global conflict surrounding its borders, one official narrative persisted: Switzerland had deterred any enemy intrusion plans thanks to its hedgehog strategy. The name “*Réduit*”, given to its heavily bunkered and armed military bases scattered throughout the Swiss Alps, became synonymous with the careful preparation against any external threats.

Therefore, in the political climate of the Cold War in the 1950s and 1960s, it wasn’t surprising that publicly amplified fears of nuclear attack made the idea of large-scale bunker construction gain significant momentum once again. Swiss political discourse started to circle back to heavy concrete constructions as symbols of national security – this time in the wake of the new nuclear apocalypse scenarios.<sup>5</sup>

4. Réduit: Swiss military bunker fortifications in the alps.

5. Silvia Berger Ziauddin, “(De) territorializing the Home: The Nuclear Bomb Shelter as a Malleable Site of Passage,” *Environment and Planning D: Society and Space* 35, no. 4 (2017): 677.



*Creation of the FOCP: The Political Process*

Before and during WWII, Switzerland had undertaken makeshift air raid protection efforts across the country, which resulted in approximately 30% of the population having provisional air-raid shelters available to them. These spaces, mostly private basements, reinforced with means such as sandbags, disappeared quickly following the end of the war and the lifting of all air-raid measures in 1946.<sup>6 7</sup> The abstinence from such infrastructural measures did not last long, as geopolitical tensions in Eastern Asia and the Levant were cited as reasons by the Confederation to renew its engagement in Civil Protection in 1951.

This revival produced both a new military air-raid unit and the beginning of building regulations for protective infrastructure. The state mandated that every new residential building include an underground air-raid cellar, placing the responsibility for its implementation on the property owner. This decision coincided with the reinstatement of an air-raid defense force in the same year.<sup>8 9</sup>

However, in 1952, the male voting population rejected a first national referendum to also implement mandatory bunker construction for all existing dwellings.

6. Jakob Tanner, "Totale Verteidigung im bedrohten Kleinstaat," in *Schutzraum Schweiz: Mit dem Zivilschutz in die Notstandsgesellschaft* (Bern: Zytglogge Verlag, 1988), 93.

7. Silvia Berger Ziauddin, "Reinforced Country Below Ground," in *Concrete in Switzerland. Histories from the Recent Past*, ed. Salvatore Aprea, Nicola Navone, and Laurent Stalder (Lausanne: EPFL Press, 2021), 78.

8. Jakob Tanner, "Totale Verteidigung im bedrohten Kleinstaat," in *Schutzraum Schweiz: Mit dem Zivilschutz in die Notstandsgesellschaft* (Bern: Zytglogge Verlag, 1988), 61.

9. Yves Meier, *Die gesellschaftliche und institutionelle Verankerung des schweizerischen Zivilschutzes in den 1950er- und 1960er-Jahren*, Licentiate thesis (Fribourg: University of Fribourg, 2007), 41.

10. Bundesamt für Bevölkerungsschutz (BABS), *50 Jahre Schutz und Hilfe, Der Schweizer Zivil- und Bevölkerungsschutz im Wandel der Zeit 1963-2013* (Bern: Bundespublikationen, 2013), 45.

11. Yves Meier, *Die gesellschaftliche und institutionelle Verankerung des schweizerischen Zivilschutzes in den 1950er- und 1960er-Jahren*, Licentiate thesis (Fribourg: University of Fribourg, 2007), 41.

12. Christoph Flury, "50 Jahre Zivilschutz in der Schweiz, Von den Pionierjahren bis zur Gegenwart," *Zivilschutz Schweiz*, no. 2 (2013): 2-4.

13. Yves Meier, *Die gesellschaftliche und institutionelle Verankerung des schweizerischen Zivilschutzes in den 1950er- und 1960er-Jahren*, Licentiate thesis (Fribourg: University of Fribourg, 2007), 98.

Although the margin was decisive, with around 85% voting "no", the efforts to consolidate Civil Protection infrastructure into legislation were not given up on easily by state and high-profile military advocates.<sup>10</sup> In 1954, air-raid organisations and smaller associations paired up to found the Swiss Civil Protection Organisation (SCPO), presided over by a prestigious former politician, the recently retired Federal Councillor Von Steiger.<sup>11</sup> Two serving federal council members, as well as numerous elected national council officials were present at the founding ceremony in Bern.<sup>12</sup> Civil Protection had thus officially created its main lobbying force.

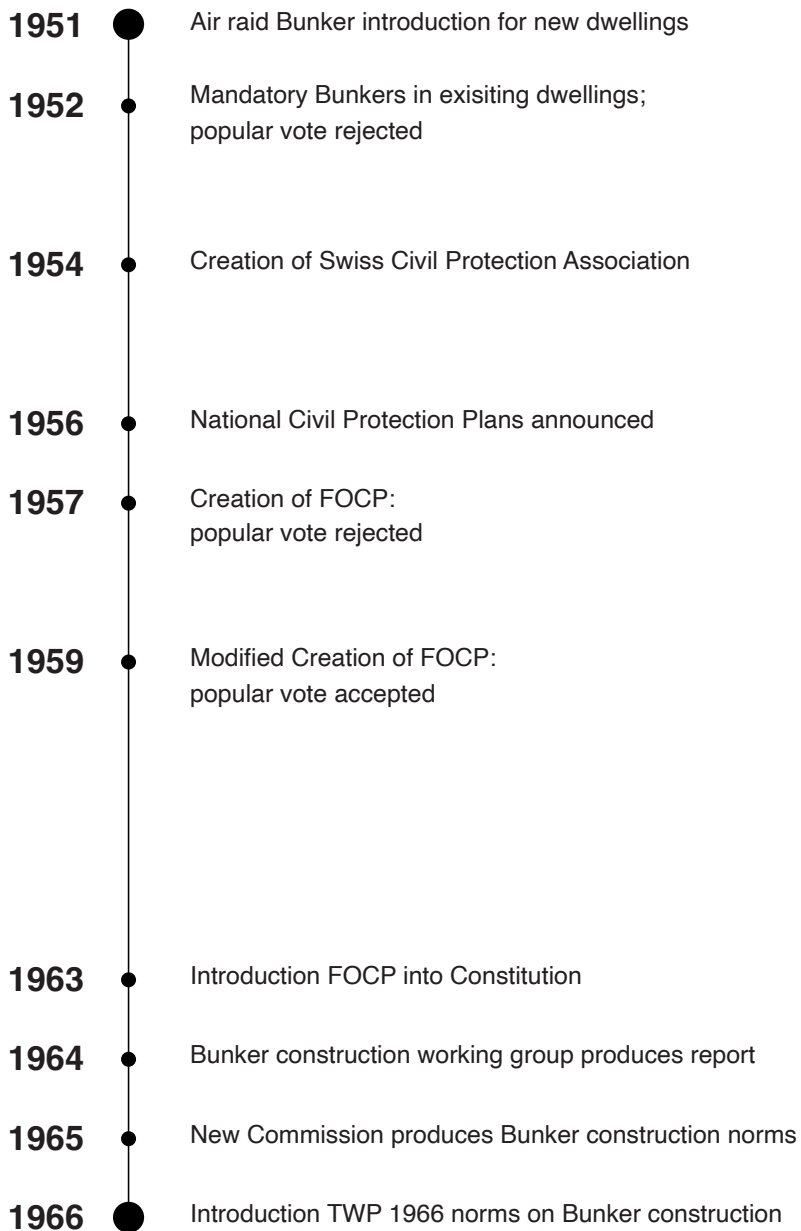
A vote followed in 1957 to enshrine a civil protection force in the constitution. Yet again the proposal was rejected by a considerable margin with over 60% voting "no". Main concerns were the mandatory service for women and a trend toward state militarization. It took another attempt in 1959 for male Swiss citizens to accept the establishment of a nationwide Federal Office of Civil Protection (FOCP) with over 62% in favour. The newly created SCPO had crucially shaped the narrative around civil protection urgency by distributing bimonthly magazines across Switzerland to mobilize public support.<sup>13</sup>

Following 1959's results, the Confederation acted without delay, and men aged 18 to 60 not serving in any military unit were, from 1962 on, subject to the newly imposed service duty.<sup>14</sup>

By establishing the Federal Office for Civil Protection and creating laws for a nationwide plan to civilian resistance and endurance in war scenarios, the Confederation had guided the defense discourse in the required direction to reach the previously formulated 1950s goal of national shelter infrastructure. In the beginning of the 1960s, the Federal Office of Civil Protection formulated a doctrine asserting that nuclear war was to be rendered survivable through rigorous national measures.<sup>15</sup>

14. Silvia Berger Ziauddin, "(De)territorializing the Home: The Nuclear Bomb Shelter as a Malleable Site of Passage," *Environment and Planning D: Society and Space* 35, no. 4 (2017): 677.

15. *ibid.* 677.



*Timeline of 15 years: The Efforts towards Shelter Norms*

Over the span of 15 years, the State drastically changed its course on civil protection infrastructure. The annulled air-raid measures from World War II were quickly reinstated in more rigorous form in 1951. When, in the mid-1950s, first efforts failed to rally the population to the cause of strong Civil Protection legislation, the Confederation doubled down on hybrid campaigns towards a protection force and a nuclear-bunker network. With support from the SCPO in a wide push for a constitutionally backed Civil Protection, the voters were finally convinced.

1963 marked a decisive advancement in the development of the national shelter network project: Both chambers of Swiss parliament accepted the proposal of a normed bunker construction obligation for new dwellings across the country.<sup>16</sup>

16. Bundesamt für Bevölkerungsschutz (BABS), *50 Jahre Schutz und Hilfe, Der Schweizer Zivil- und Bevölkerungsschutz im Wandel der Zeit 1963-2013* (Bern: Bundespublikationen, 2013), 47.

# 2

## Nuclear Protection on a Deadline

## *A military-technocratic idea enters Swiss homes on the fast track*

This chapter shows how the FOCP's selected experts and its political-industrial backgrounds shaped Switzerland's first nuclear shelter norms.

Having no expertise in nuclear defense construction, the Confederation sought knowledge and guidance to assess the form of such uncharted civil infrastructure. Handpicked by the FOCP, a specially appointed team of ten began examining the plans and implementation of eventual mass shelter construction policy. This working group consisted of chemists, engineers, and physicists, and was chaired by an architect.

It must be stated that at least seven group members had strong ties to the Swiss nuclear industry, construction industry or the Swiss military.<sup>17 18</sup> Notably, the working group's president, Gottfried Schindler, had founded an air-filter company for underground construction with another group member, Alex Haerter, in 1963.<sup>19</sup>

17. Jakob Tanner, "Totale Verteidigung im bedrohten Kleinstaat," in *Schutzraum Schweiz: Mit dem Zivilschutz in die Notstandsgesellschaft* (Bern: Zytglogge Verlag, 1988), 96. Note: Swiss Nuclear Scientists were actively working on the development of nuclear weaponry in the 1960s.

18. Bundesarchiv, *Adressen-Verzeichnis der Mitglieder der Arbeitsgruppe für baulichen Zivilschutz*, Akte 452.0, Signatur E3010A#1981/26#59\*, (Bern: Bundesamt für Kulturpflege, 1962-1965), 1.

19. "Firmenprofil HBI Haerter Beratende Ingenieure," Haerter Beratende Ingenieure, [https://www.hbi.ch/fileadmin/user\\_upload/unternehmen/firmenunterlagen/1\\_ORG\\_A\\_002\\_Firmenprofil\\_D.pdf](https://www.hbi.ch/fileadmin/user_upload/unternehmen/firmenunterlagen/1_ORG_A_002_Firmenprofil_D.pdf).

20. Bundesarchiv, *Adressen-Verzeichnis der Mitglieder der Arbeitsgruppe für baulichen Zivilschutz*, Akte 452.0, Signatur E3010A#1981/26#59\*, (Bern: Bundesamt für Kulturpflege, 1962-1965), 1-4."

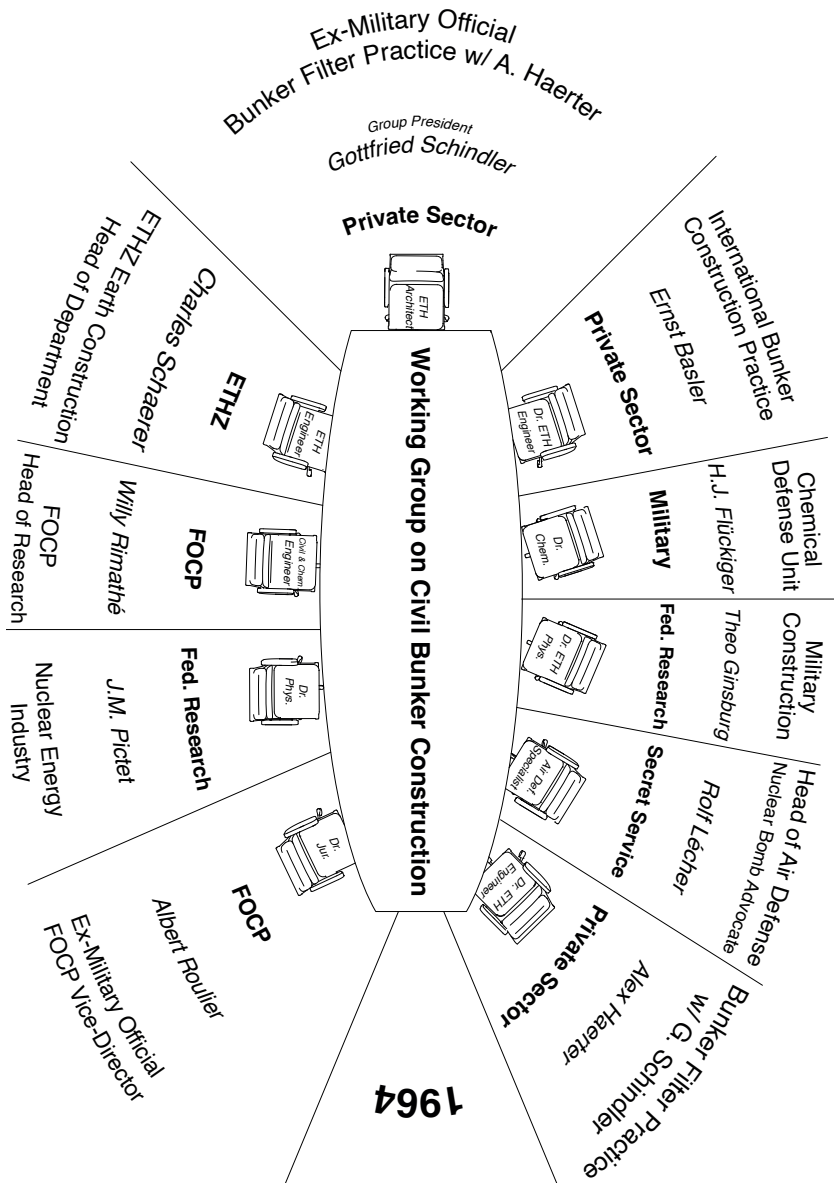
21. Silvia Berger Ziauddin, "Reinforced Country Below Ground," in *Concrete in Switzerland. Histories from the Recent Past*, ed. Salvatore Aprea, Nicola Navone, and Laurent Stalder (Lausanne: EPFL Press, 2021), 78-79.

22. Silvia Berger Ziauddin, "Superpower Underground," in *Technology and Culture* 58, no. 4 (October, 2017): 932-933.

Although being self-admitted beginners in the matter of nuclear bomb defense, the group launched a research initiative including multiple trips to universities and scientific discussion.

Rather than questioning the effectiveness of mass bunker construction measures, the primary concern of the experts shifted towards the question of how to build the shelters so that they would withstand most eventualities, including mass destruction.<sup>20</sup> Academic exchanges were conducted primarily with institutions in the United States. During such research trips, all available data, including formerly classified US information on nuclear weaponry and warfare, was collected.<sup>21</sup>

During a research symposium at ETH Zurich organized by the FOCP, the topic was brought into academic spotlight. The mass bunker plans were no longer exclusively discussed within the Swiss government, but now also on the most prestigious technical stage available in the country at the time. Coincidentally in Europe, nations such as West Germany had renounced plans of mass bunker construction, as concerns around feasibility, costs and a potential over-militarisation of society gave pause to politicians, researchers and the general public.<sup>22</sup>



The 10 Men at the Table: Backgrounds of the Working Group

23. Yves Meier, *Die gesellschaftliche und institutionelle Verankerung des schweizerischen Zivilschutzes in den 1950er- und 1960er-Jahren*, Licentiate thesis (Fribourg: University of Fribourg, 2007), 53.

24. Bundesamt für Bevölkerungsschutz (BABS), *50 Jahre Schutz und Hilfe, Der Schweizer Zivil- und Bevölkerungsschutz im Wandel der Zeit 1963-2013* (Bern: Bundespublikationen, 2013), 58.

The working group for civil protection construction was under time pressure to come up with results and conclusive statements, with many air-raid cellars under the provisional, and arguably ineffective, norms of 1952 still being constructed nationwide at a rapid pace.<sup>23</sup> As these older installations did not satisfy the Confederation's ambitious nuclear defense standards, and the construction boom of the 1960s further contributed to the pressure put on the working group, the ten men relied on quick calculations and estimates rather than thorough physical experiments to examine the feasibility of the projected bunker infrastructure. The theoretical conclusions which resulted from this period of research, laid the foundations for the first nuclear bunker norms in Switzerland.<sup>24</sup>

1965, in a direct report to the Swiss Federal Council, the group's findings were summarized by the FDJP (Federal Department of Justice and Police). Apart from several construction recommendations, the report mentioned, that even the FOCP's expert group had doubts about the protective measures - particularly in such dense urban areas as were Swiss cities, where bunker reinforcement would most likely neither logistically nor technically prevent mass casualties. Decentralisation was identified

in the report to be the only practical measure ensuring partial survival from nuclear attacks.<sup>25</sup> Furthermore, the need for more research time was stated as crucial to develop precise norms for eventual bunker construction.<sup>26</sup>

Subsequently, in 1965, a new study commission was established, replacing the original ten members and accelerating the development of building standards, but still basing itself on the working group's estimations. Led by key political and military figures and political actors from within the FOCP, the new commission quickly produced the first fully developed and immediately applicable set of nuclear bunker norms by 1966.<sup>27 28</sup> The developed strategy was to rely on an economically viable and uniform protection measure. The selection of reinforced concrete as the primary material was not coincidental. The Swiss cement industry had systematically advanced reinforced concrete as a technically superior solution for air-raid protection and entertained close institutional ties with engineering officials inside of the FOCP.<sup>29</sup>

25. Bundesarchiv, *Bericht der Arbeitsgruppe für baulichen Zivilschutz an das Eidgenössische Justiz- und Polizeidepartement*, Akte 452.0, Signatur E3010A#1981/26#59\*, (Bern: Bundesamt für Kulturpflege, 1962-1965), 1-7.

26. *ibid.* 1-7.

27. Bundesamt für Bevölkerungsschutz (BABS), *50 Jahre Schutz und Hilfe, Der Schweizer Zivil- und Bevölkerungsschutz im Wandel der Zeit 1963-2013* (Bern: Bundespublikationen, 2013), 65.

28. Yves Meier, *Die gesellschaftliche und institutionelle Verankerung des schweizerischen Zivilschutzes in den 1950er- und 1960er-Jahren*, Licentiate thesis (Fribourg: University of Fribourg, 2007), 54.

29. Silvia Berger Ziauddin, "Reinforced Country Below Ground," in *Concrete in Switzerland. Histories from the Recent Past*, ed. Salvatore Aprea, Nicola Navone, and Laurent Stalder (Lausanne: EPFL Press, 2021), 79.

30. Eidgenössisches Justiz- und Polizeidepartement, and Bundesamt für Zivilschutz, *TWP 1966 Technische Weisungen für den privaten Schutzraumbau* (Bern: Eidgenössische Drucksachen- und Materialienzentrale, 1966), 2-10.

31. Yves Meier, *Die gesellschaftliche und institutionelle Verankerung des schweizerischen Zivilschutzes in den 1950er- und 1960er-Jahren*, Licentiate thesis (Fribourg: University of Fribourg, 2007), 52.

These so-called TWP 1966, (Technical Directions for the construction of private air raid shelters), remained in force, largely unchanged, for nearly two decades – and later served as the basis for the TWP 1984 norms. No other official document influenced Swiss bunkers as profoundly over the sixty years of shelter building.<sup>30</sup>

Implemented through quick and radical decisions from the FOCP's experts, new norms capitalized on the economic and housing boom to enable the construction of bunkers on a significant scale. Through large narrative-building efforts, extensive funding and legislative speed, the built part of civil protection thus became the scaffolding without which the later development of the entire Federal Office for Civil Protection would arguably not have been conceivable.<sup>31</sup>



# 3

## TWP Norms and the Bunker Business

## *Actors within the subsidized ecosystem and their influence*

1966 marked the introduction of the first comprehensive set of nuclear-bunker building standards regulating Switzerland's newly established civil-protection-construction system. This chapter first aims to clarify the exact shape and functions the civil protection shelters took following the TWP 1966 norms. The second part focuses on the markets and benefactors these norms produced.

The TWP 1966 regulations on private civil protection infrastructure were implemented as soon as they had been drafted. Economically, the rules were as simple as they were generous: The cost for a private civil protection shelter could reach up to 5% of the total budget for the respective building project.<sup>32</sup> Bunkers could be triple fortified, provided the cost did not exceed the percentage.

The degree of protection was to be measured from 1 to 3 atü, tons of air pressure per m<sup>2</sup>.<sup>33</sup> Up to 70% of costs were paid by either the Confederation, Canton, and or Municipality, depending on the case.<sup>34</sup>

32. Eidgenössisches Justiz- und Polizeidepartement, and Bundesamt für Zivilschutz, *TWP 1966 Technische Weisungen für den privaten Schutzraumbau* (Bern: Eidgenössische Drucksachen- und Materialienzentrale, 1966), 11.

33. *ibid.* 12.

34. Yves Meier, *Die gesellschaftliche und institutionelle Verankerung des schweizerischen Zivilschutzes in den 1950er- und 1960er-Jahren*, Licentiate thesis (Fribourg: University of Fribourg, 2007), 112.

35. Eidgenössisches Justiz- und Polizeidepartement, and Bundesamt für Zivilschutz, *TWP 1966 Technische Weisungen für den privaten Schutzraumbau* (Bern: Eidgenössische Drucksachen- und Materialienzentrale, 1966), 9.

36. *ibid.* 12.

37. *ibid.* 20

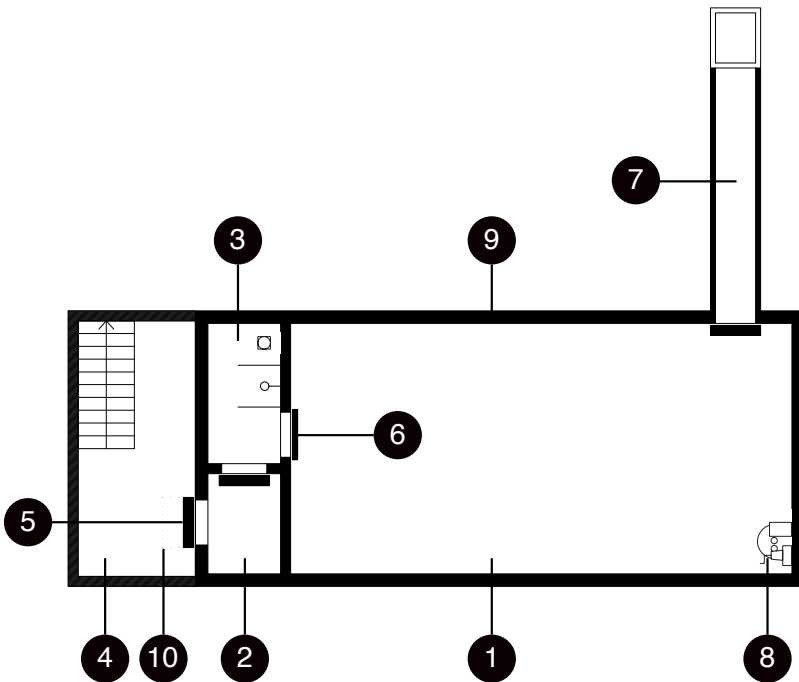
The norms had been written into a three-chapter pamphlet: Part one presented assumptions and estimated the effect of nuclear attacks. The second chapter, addressing architects and construction workers, laid out the required dimensions and programs for bunkers. The final part was supposed to assist civil engineering calculations for any adaptations or exceptions.<sup>35</sup>

Focusing on the second part of the pamphlet, priorities in shelter conception included the immediate protection from bomb impact and subsequent debris, as well as securing escape routes after an attack. Inhabitants were expected to spend “between a few days and a few weeks” inside the bunker.<sup>36</sup> Various aspects differed from usual concrete construction. Firstly, the reinforced thicknesses were generally augmented. Ranging from a 25cm minimum for an underground exterior wall to an exposed outside wall which was required to have an extensive thickness of 80cm, exceeding normal construction requirements by far. The normed thickness could even further increase if higher degrees of fortification were desired, topping off at 120cm of reinforced concrete for triple defensive requirements.<sup>37</sup>

Equally noteworthy were the expected blast doors and blast hatches that were to be included in the new protection shelters. The required thickness ranged from approximately 150kg of steel for the hatches to 250 kg for standard blast doors; and both were to be filled with concrete once installed.<sup>38</sup>

To ensure the safe exit from the bunkers, reinforced slabs, emergency tunnels and exits were to be positioned strategically at different points of the bunker.

38. Eidgenössisches Justiz- und Polizeidepartement, and Bundesamt für Zivilschutz, *TWP 1966 Technische Weisungen für den privaten Schutzraumbau* (Bern: Eidgenössische Drucksachen- und Materialienzentrale, 1966), 31.



*TWP 1966: The Main Elements*

- 1 Shelter Room
- 2 Air Lock
- 3 Decontamination Space
- 4 Pre-Entry Room
- 5 Blast Door
- 6 Pressure Door
- 7 Escape Tunnel
- 8 Gas Filter Ventilation
- 9 Reinforced Concrete Walls
- 10 Cantilever Slab

39. Peter Hug, "Totale Verteidigung im bedrohten Kleinstaat," in *Schutzraum Schweiz: Mit dem Zivilschutz in die Notstandsgesellschaft* (Bern: Zytglogge Verlag, 1988), 135.

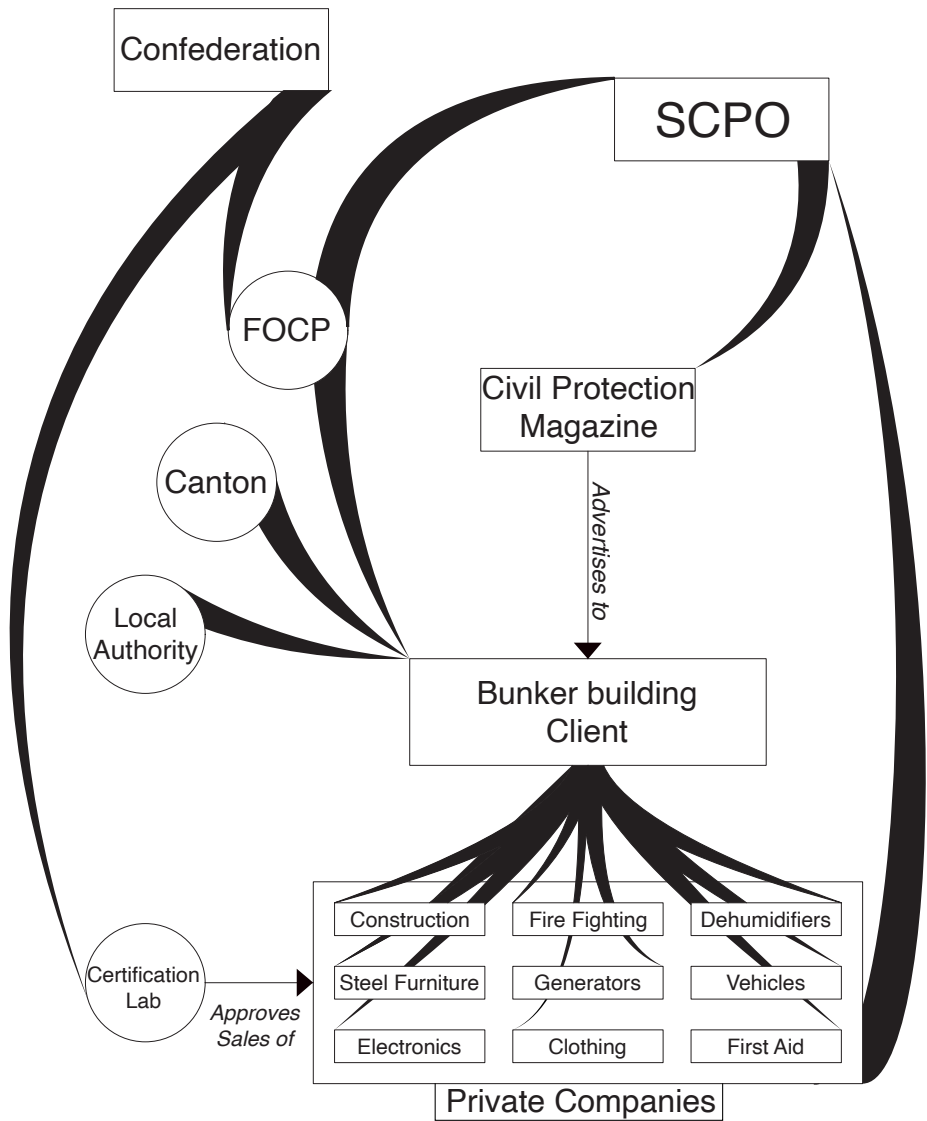
40. Schweizerischer Bund für Zivilschutz, "Zivilschutz," *Schweizerische Zeitschrift für Schutz und Betreuung der Zivilbevölkerung im Kriegs- und Katastrophenfall* 1, no. 1./14, no. 12. (1954-1967). Zivilschutz- Fachverband der Städte und der Schweizerischen Gesellschaft für Kulturgüterschutz, "Zivilschutz = *Protection civile* = *Protezione civile*." *Zeitschrift des Schweizerischen Bundes für Zivilschutz* 15, no. 1/21, no. 12. (1968-1975).

Following the decision of the Swiss state to implement these norms, the advertising in the SCPO magazines for civil protection gear and construction elements soared.

The magazines were now distributed monthly across the country and funded by both private companies and the FOCP.<sup>39</sup> Printing a dozen yearly magazines instead of the previous six, as well as tripling the number of ads from 1965 to 1975, symptoms of a quickly evolving market were becoming noticeable throughout the numerous magazines distributed during the 20 years from 1955.<sup>40</sup>

The new market operated in an oddly circular way: The FOCP funded the civil protection magazines distributed by the SCPO. In those same booklets, the Swiss Civil Protection Organisation explicitly recommended specific private companies and products to prospective buyers through ads. Property owners that initiated new construction then received public financing to build their shelters and equip them.

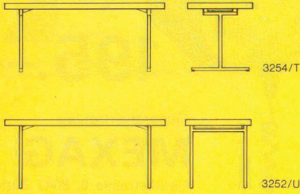
These subsidies ultimately flowed back to the very firms promoted in the publications upon construction. Additionally, certain bunker parts such as blast doors were only produced by authorised companies.



Illustrating the Loop: Financial Flux in the Ecosystem

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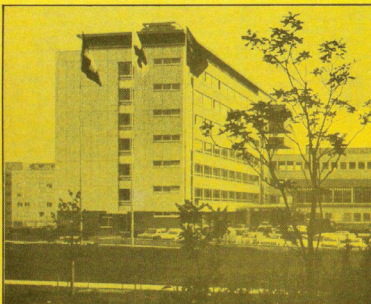
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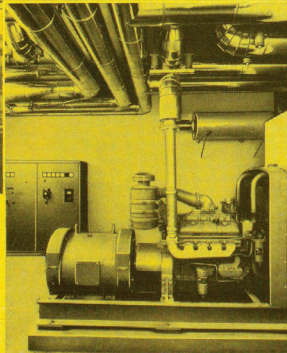
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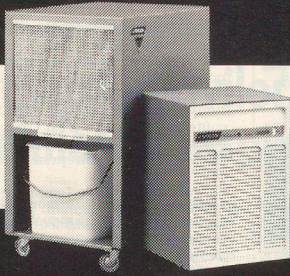


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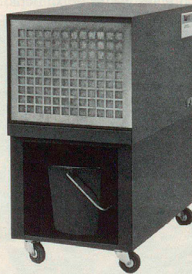
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Verkauf bei Ihrem Puch/Mercedes-Händler

41. Schweizerische Eidgenossenschaft, "Kollektivschutz," *Labor Spiez*, <https://www.spiezlab.admin.ch/de/kollektivschutz-de>.

The required approval had to be issued by the FOCP's test laboratories for bunker components.<sup>41</sup>

42. Yves Meier, *Die gesellschaftliche und institutionelle Verankerung des schweizerischen Zivilschutzes in den 1950er- und 1960er-Jahren*, Licentiate thesis (Fribourg: University of Fribourg, 2007), 112.

FOCP subsidies for bunkers rose continually in the 1960s and early 1970s: While in 1963, the FOCP had paid approximately 7.2 million CHF in bunker subsidies, this number reached 120 million CHF in 1973.<sup>42</sup>

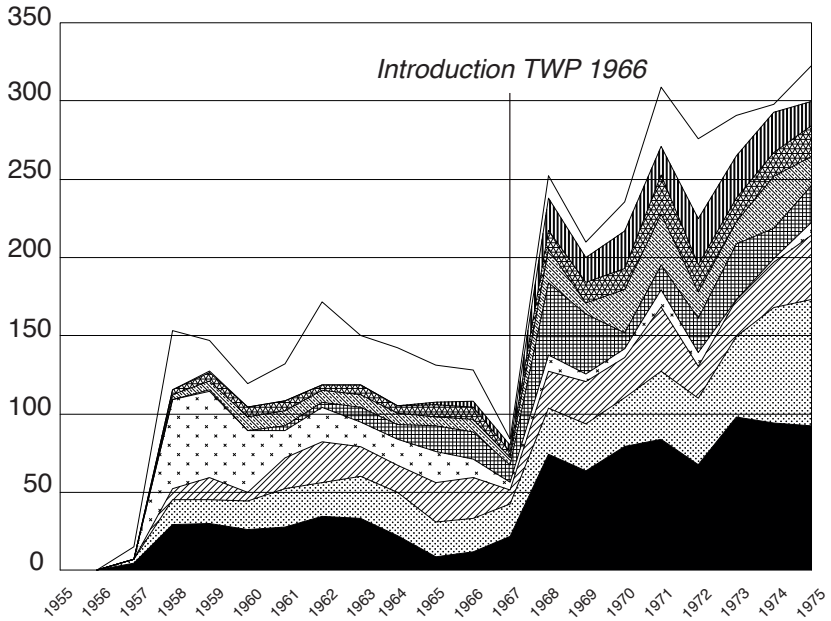
43. Jakob Tanner, "Totale Verteidigung im bedrohten Kleinstaat," in *Schutzraum Schweiz: Mit dem Zivilschutz in die Notstandsgesellschaft* (Bern: Zytglogge Verlag, 1988), 60.

In 1983 Swiss Civil Protection expenses per capita ranked the highest in the world, ahead of Sweden, the USSR, and Israel.<sup>43</sup>

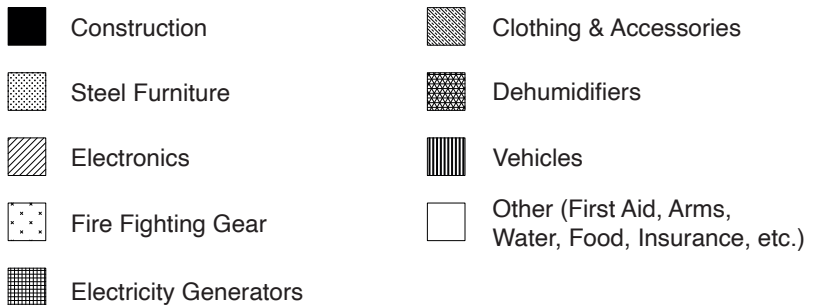
44. Bundesamt für Bevölkerungsschutz (BABS), *50 Jahre Schutz und Hilfe, Der Schweizer Zivil- und Bevölkerungsschutz im Wandel der Zeit 1963-2013* (Bern: Bundespublikationen, 2013), 67.

Coinciding with, profiting from, and enhancing the exploding housing boom, the Confederation estimated in 1970 that around 3'000'000 shelter spaces had already been built: Two thirds of which were deemed to meet the new nuclear TWP standards. The declared goal of the infrastructure project was to reach full population coverage, 7'500'000 shelter spaces, until 1990. The Confederation's projections foresaw around 300'000 new spaces every year.<sup>44</sup>

SCPO Magazines: Number\* of ads published per year & industry

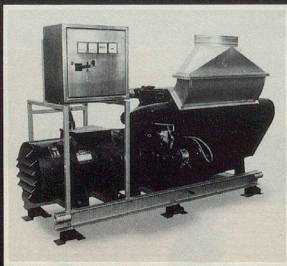


\* Each ad weighted as 1, full page ads weighted as 2



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45. Eidgenössisches Justiz- und Polizeidepartement, and Bundesamt für Zivilschutz, *TWP 1984 Technische Weisungen für den privaten Schutzraumbau* (Bern: Eidgenössische Drucksachen- und Materialienzentrale, 1984), 12.

46 *ibid.*: 37.

47. Schweizerische Eidgenossenschaft, "Unterlagen Schutzbauten," *Bundesamt für Bevölkerungsschutz*, <https://www.babs.admin.ch/de/unterlagen-schutzbauten>.

48. Sozialdemokratische Partei der Schweiz (SP), *Stellungnahme der Teilrevision des Bevölkerungs- und Zivilschutzgesetzes*, Bern: VBS, Bundesamt für Bevölkerungsschutz (Mai, 2010): 1-6.

49. Ständerat, Sicherheitskommission des Ständerates (SiK-S), "05.400 n Pa.Iv. Kohler. Zivilschutz. Aufhebung der Pflicht zum Bau von privaten Schutzräumen" *Bericht der Sicherheitspolitischen Kommission vom 19. Januar 2009* (2009): 1-4.

50. Schweizerische Eidgenossenschaft, "Startseite," *Bundesamt für Bevölkerungsschutz BABS*, <https://www.babs.admin.ch/de>.

In 1984, a few changes were added to the TWP norms, creating the TWP 1984 regulations which are still in effect. They included the planning for steel furniture inside the normed spaces, as well as the replacement of the decontamination room by a simplified sanitary area.<sup>45 46 47</sup> Overall, the norms still are heavily based on their counterparts from 1966.

At the turn of the 20<sup>th</sup> century, individual actors as well as political parties wrestled with the obligation to continue to build the protection shelters and almost brought it to a moratorium.<sup>48 49</sup> In 2012, the Swiss Confederation reevaluated its policy on civil protection shelters, as national coverage already exceeded 100% of the population. From then on, at the federal level, a compensation fee of 800 CHF could be paid instead of constructing a new shelter for each inhabitant. The compensation funds were to be allocated towards bunker maintenance and renovation. However, the cantons retained the authority to require shelter construction in areas deemed strategically important.<sup>50</sup>

In October 2025, the Confederation decided to ensure the preservation of the bunker infrastructure by raising the amount of compensation to 1400 CHF, anticipating

widespread air filter renovation measures among other things. Up to this point, 880 million CHF had been collected through the compensation payments in the bunker renovation fund.<sup>51</sup>

The TWP norms translated the country's civil protection legislation into a standardised and quickly deployable construction tool, drafted by a selected panel instead of elected officials.

The material, dimension, and technical requirements produced by these regulations created a new market ecosystem inside the construction sector with guaranteed demand until 100% shelter coverage throughout the country. FOCP-supported publications by the Swiss Civil Protection Organisation recommended private contractors to the public. Thus, the subsidized funds were channelled back directly to those advertising in the magazines. Until the 1990s, this ecosystem functioned as described, steadily forming the Swiss underground landscape.<sup>52</sup> More recently, several norms have been added, but the TWP 1984 remain in place as of 2026.<sup>53</sup>

51. Schweizerische Eidgenossenschaft, "Änderungen in der Zivilschutzverordnung (ZSV) & Dachstrategie Schutzbauten," *Bundesamt für Bevölkerungsschutz*, <https://www.babs.admin.ch/de/aenderungen-in-der-zivilschutzverordnung-zsv-und-dachstrategie-schutzbauten>.

52. Yves Meier, *Die gesellschaftliche und institutionelle Verankerung des schweizerischen Zivilschutzes in den 1950er- und 1960er-Jahren*, Licentiate thesis (Fribourg: University of Fribourg, 2007), 111.

53. Schweizerische Eidgenossenschaft, "Unterlagen Schutzbauten," *Bundesamt für Bevölkerungsschutz*, <https://www.babs.admin.ch/de/unterlagen-schutzbauten>.

# 4

## Two Case Studies: Norms at Scale

*Reconstructing and estimating  
resource cost by close examination*

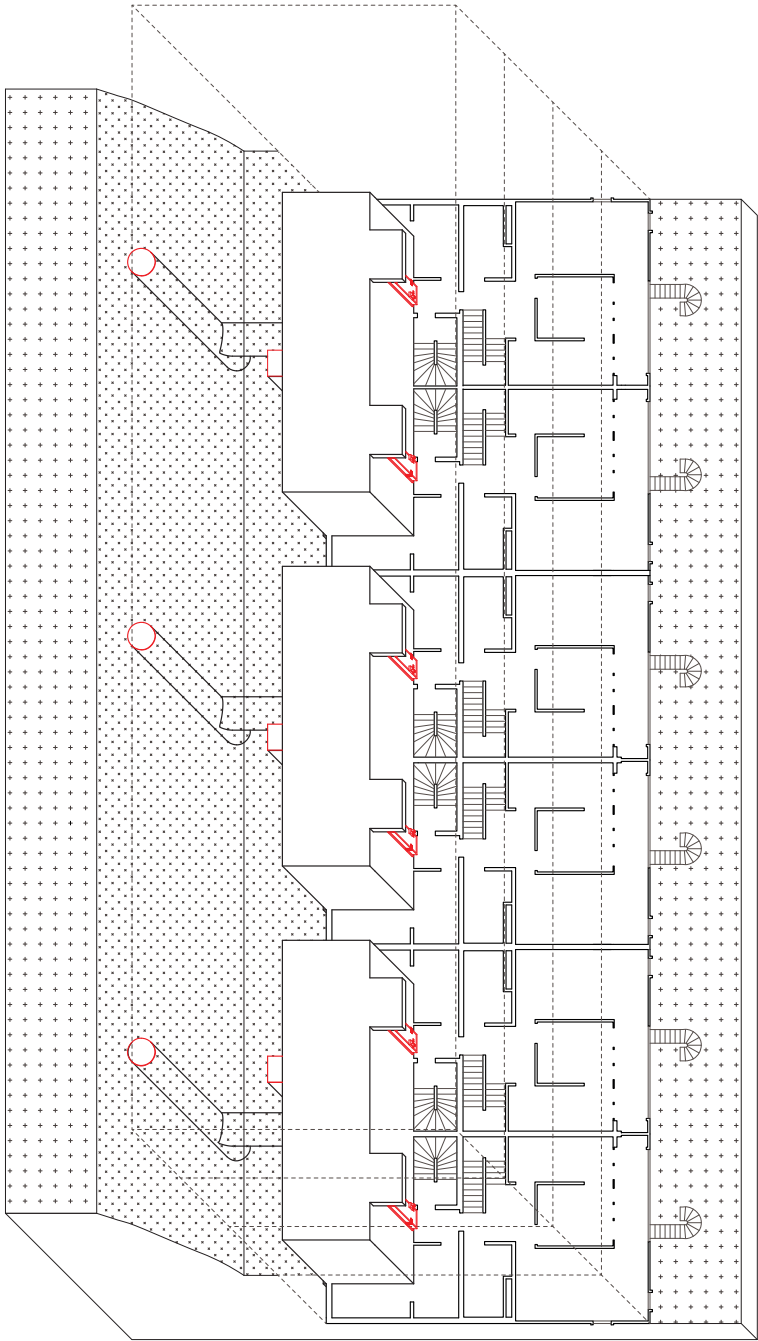
This chapter examines the resulting shape, resource and financial costs of bunkers, building on prior calculations and looking at two case studies involving the 1966 norms as well as the 1984 set.

### *Siedlung Hintere Aumatt, 1983*

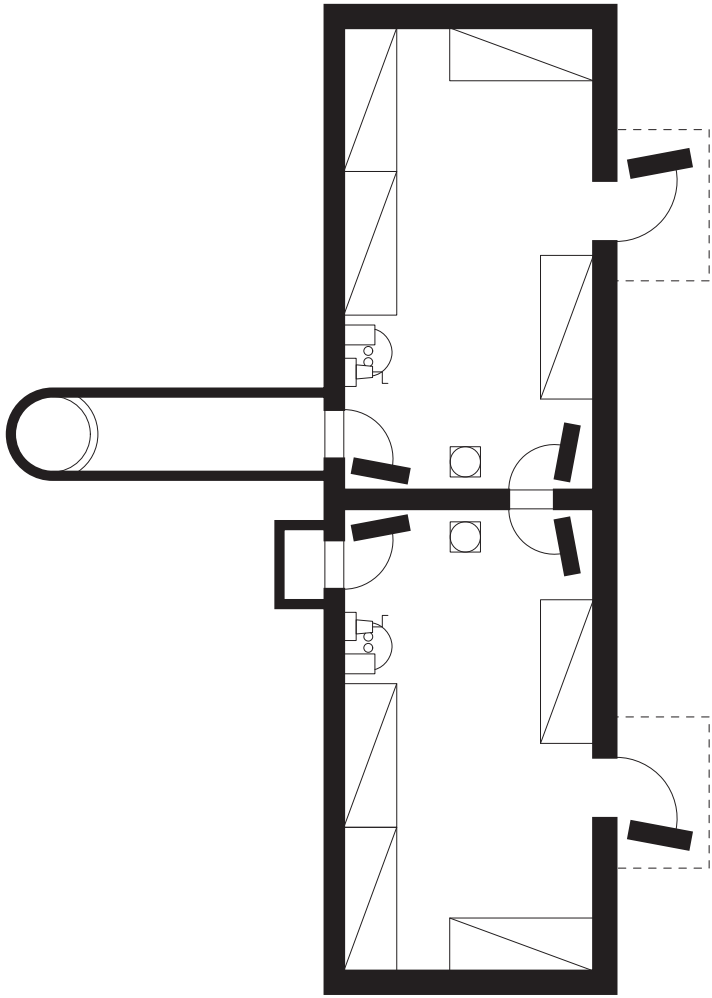
54. "Cité d'habitation Hintere Aumatt," *AS Schweizer Architektur*, <https://architecture-suisse.ch/fr/as/078/cite-dhabitation-hintere-aumatt/>.

55. *Aumatt*, <https://www.aumatt.ch/>.

The Aumatt Siedlung in Hinterkappelen near Bern is a large cooperative housing settlement designed by ARB Architekten. Two long building rows combine terraced houses and apartment blocks. Materially, Aumatt relies on robust late-modern housing construction: Structure and retaining elements are made of reinforced concrete.<sup>54 55</sup>



*Aumatt Bunker Row*



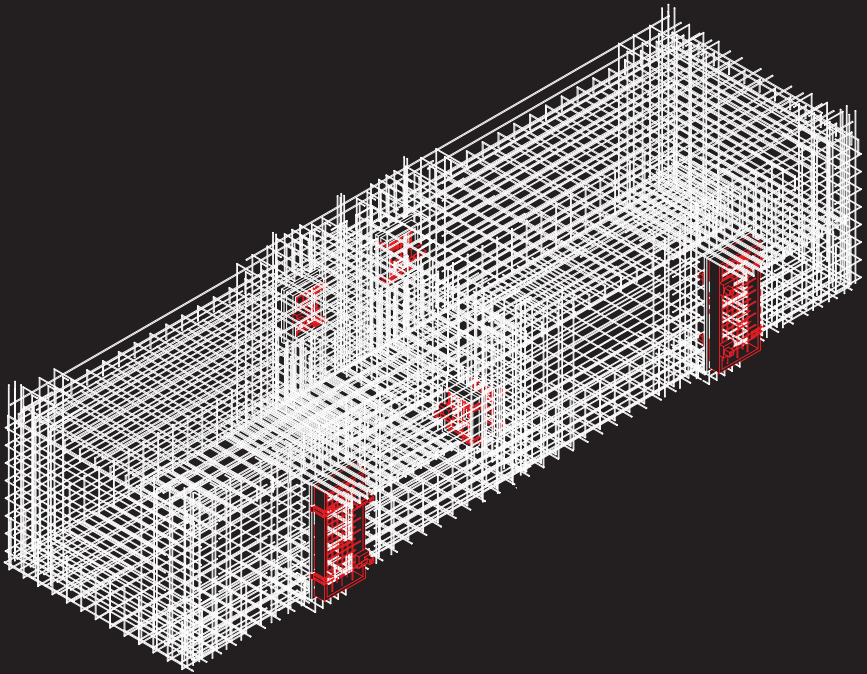
*Aumatt Bunker Plan, 1:100*

## *The Bunker*

Each bunker in the analysed four-story row is divided into two compartments, each foreseen to accommodate ten residents in case of emergency. Note the absence of any air lock or decontamination room, as these are not required in bunkers for fewer than 25 inhabitants in the TWP 1966.<sup>56</sup> The two rooms are connected by a small blast hatch. For each shelter, one compartment is equipped with a longer escape tunnel and one with a simpler emergency exit. This small but nationally prevalent scale of the bunker makes it less efficient in terms of material and cost.

56. Eidgenössisches Justiz- und Polizeidepartement, and Bundesamt für Zivilschutz, TWP 1966 Technische Weisungen für den privaten Schutzraumbau (Bern: Eidgenössische Drucksachen- und Materialienzentrale, 1966), 18.

Year:	1983
Norm Set:	TWP 1966
Inhabitants:	60
Living Area:	123m <sup>2</sup>
Concrete:	170m <sup>3</sup>
Steel:	11'398 kg
Excavated Mass:	497m <sup>3</sup>
Ventilation Units:	6
Blast Doors & Hatches:	18
Triple Beds:	20



**Zivilschutz** Protezione civile

3/82

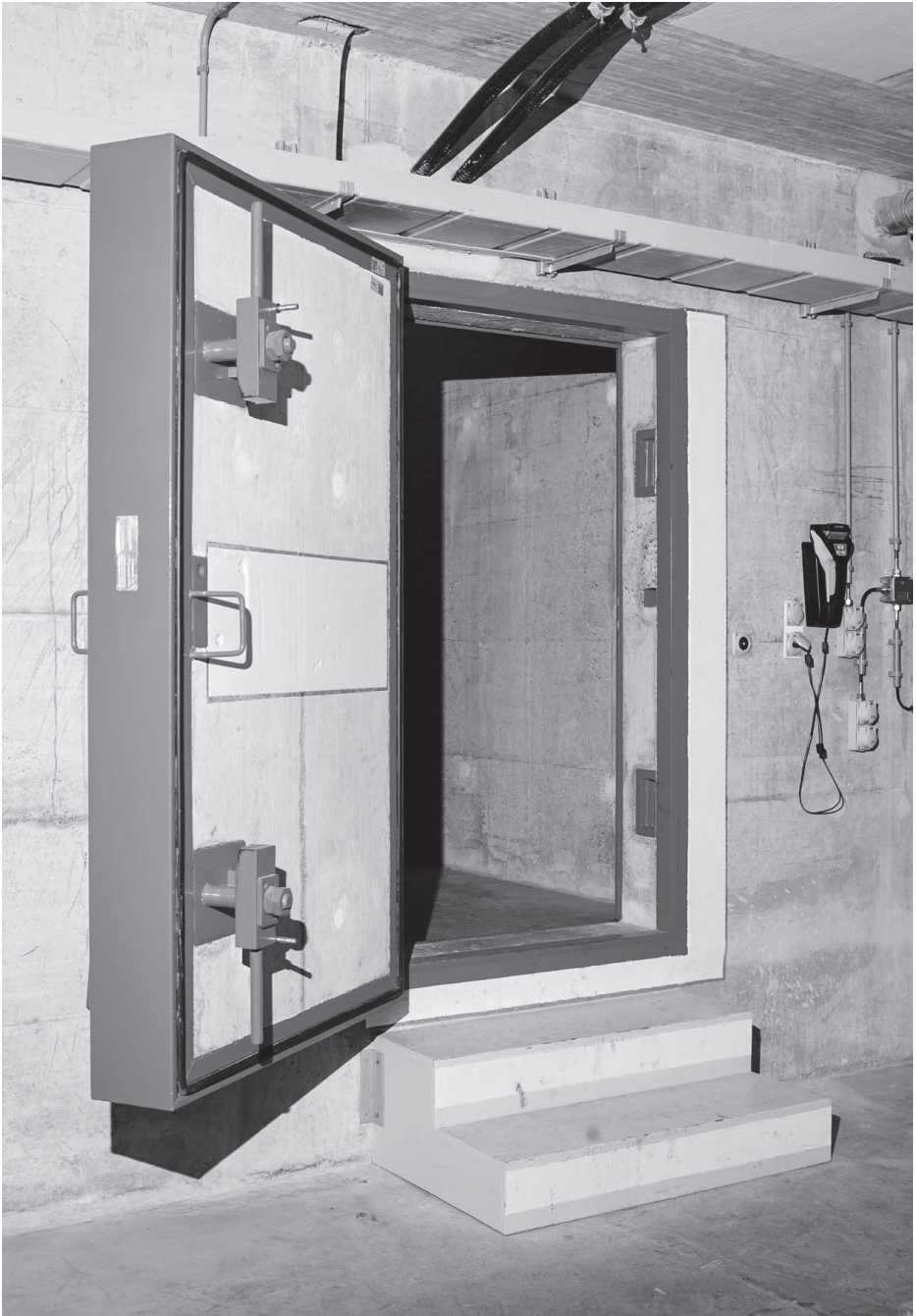
Protección civila **Protection civile**

*Per. M 5678*

Sto.



F6) Cover Page, SCPO magazine, 1982



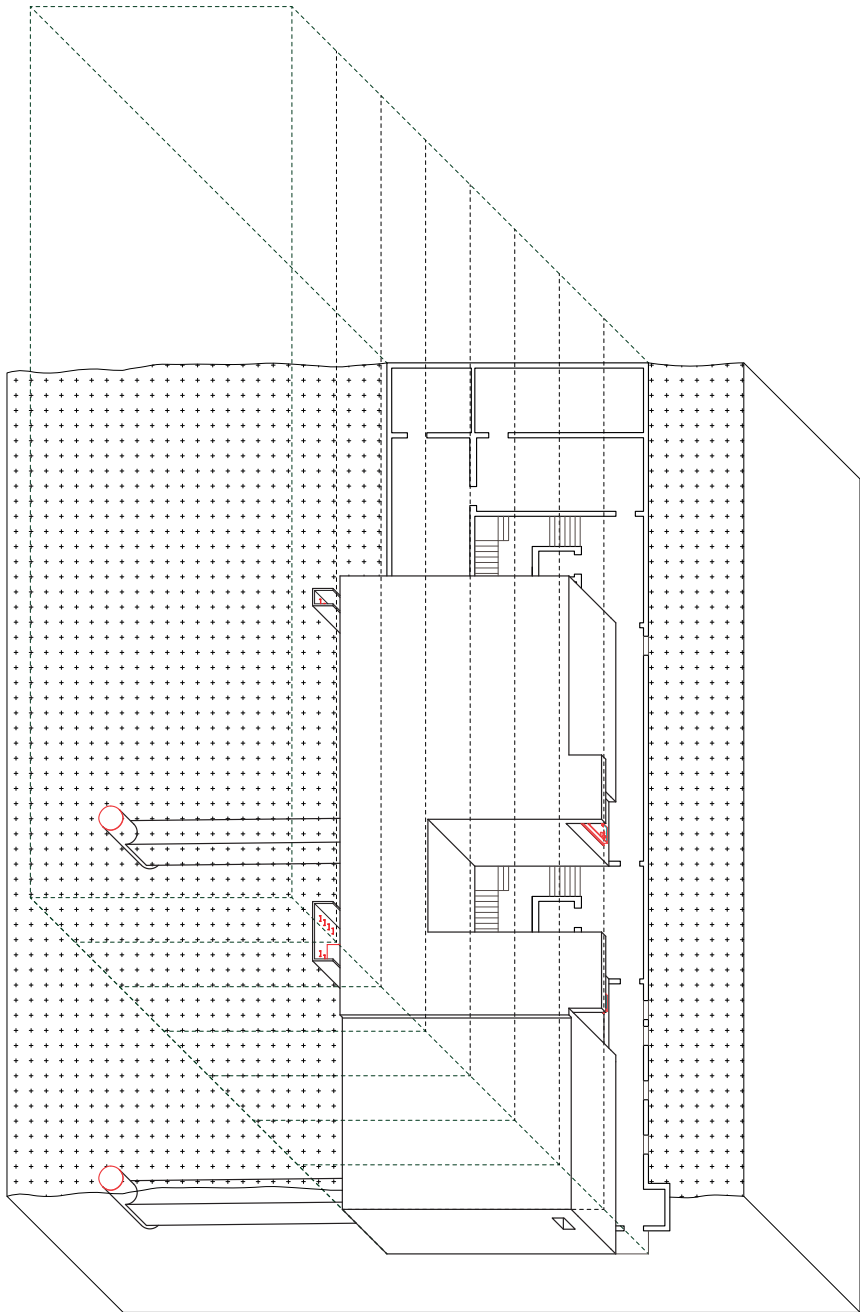
*F7) Beaulieu Blast Door, Tanguy Caversaccio & Iskander Guetta, 2023*

## *Reichenbachstrasse 118a, 2024*

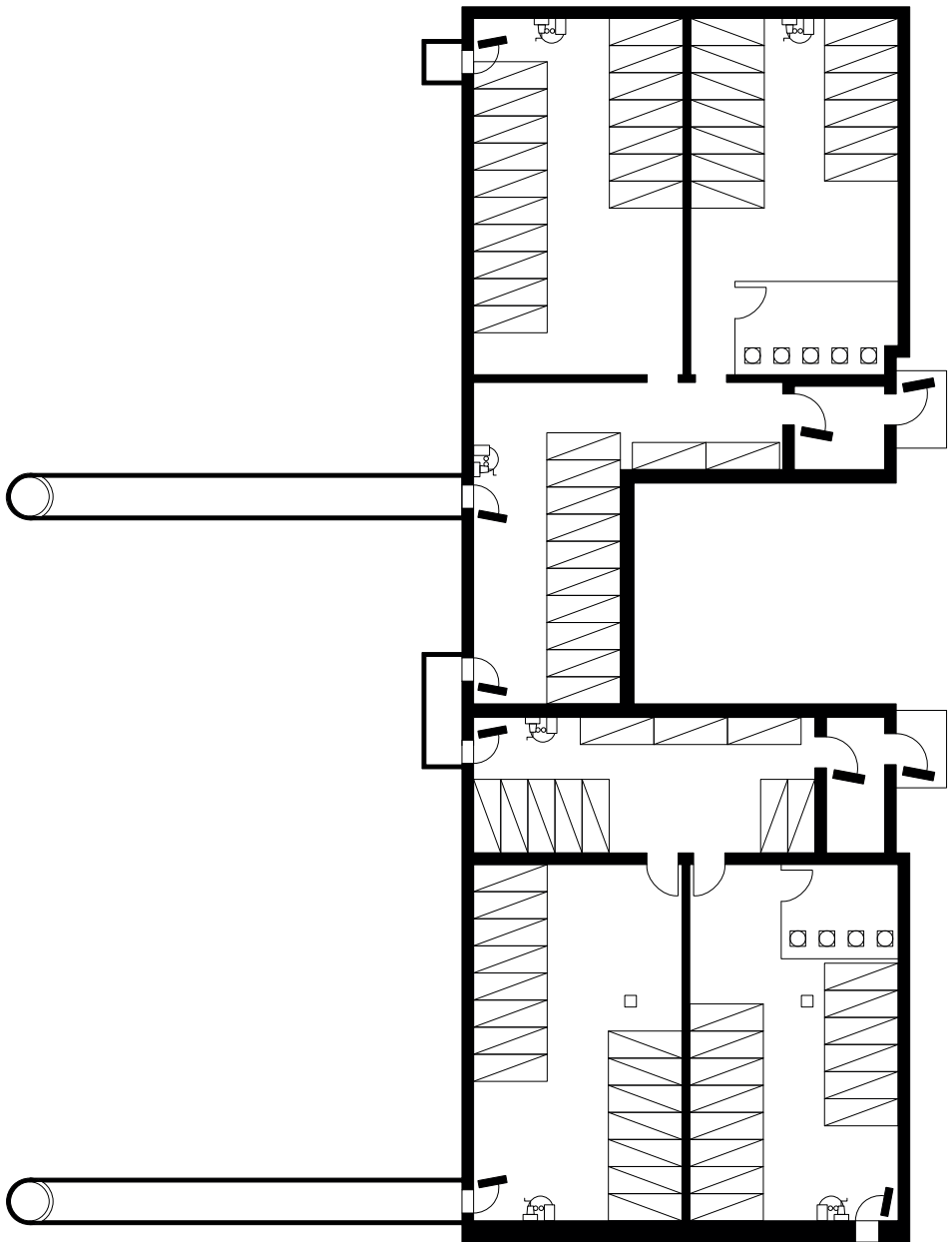
57. Philippe Müller, "Wohnüberbauung Reichenbachstrasse 118 Bern," *Das 2000-Watt-Areal/Le Site 2000 Watt* (15. March 2024) <https://www.bern.ch/politik-und-verwaltung/stadtverwaltung/fpi/immobilien-stadt-bern/unsere-themen/nachhaltiges-immobilienmanagement/siedlung-reichenbachstrasse-118/dokumente/factsheet-2000wa-reichenbachstrasse-118-de-web.pdf/view?searchterm=%20garten>.

58. Vortrag des Gemeinderats an den Stadtrat GR.000449, *Wohnüberbauung Reichenbachstrasse 118: Baukredit (Abstimmungsbotschaft)*, (2008).

The WRB Reichenbachstrasse is a municipal affordable-housing development in the agglomeration of Bern. The housing complex was designed by Büro B, after winning a public competition. The materiality is defined by prefabricated concrete façade elements paired with fibre cement cladding panels. The examined building is one of an ensemble of four eight-story units.<sup>57 58</sup>



*Reichenbachstrasse Bunker*

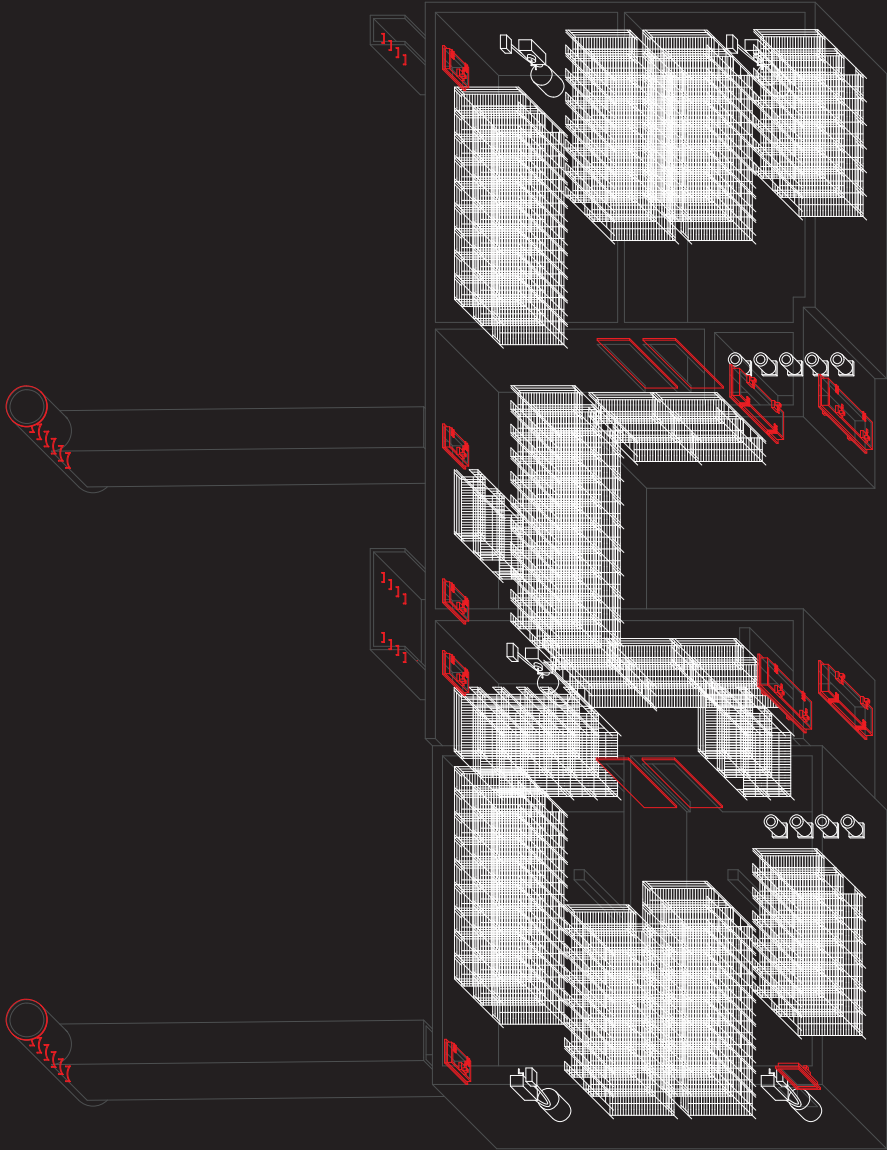


Reichenbachstrasse Bunker Plan, 1:250

### *The Bunker*

The shelter is designed for 226 people, according to the TWP 1984 norms, with a main separation into two halves with three compartments each. The upper half accommodates up to 126 inhabitants, the bottom part 120. For each of the three compartments in both parts, triple bunk beds are foreseen in large rows, as well as improvised sanitary installations replacing any decontamination rooms in the new norms. Both entrances are planned with a heavy air lock through 2 separate blast doors. Both bunker chambers have their corresponding emergency exits and escape tunnels. Material efficiency is slightly better when compared to smaller bunkers, as doors and hatches are optimized.

Year:	2024
Norm Set:	TWP 1984
Foreseen Inhabitants:	226
Living Area:	325 m <sup>2</sup>
Concrete:	372 m <sup>3</sup>
Steel:	39'014 kg
Excavated Mass:	1150 m <sup>3</sup>
Gas Filter Units:	6
Blast Doors & Hatches:	10
Triple Beds:	82



*Reichenbachstrasse Bunker Beds & other Equipment*

# In der rechtzeitigen Vorsorge zeigt sich echte Fürsorge

Nur hervor-  
ragende Qualität  
bietet optimalen  
Schutz

Zivilschutz-  
Liegestellen für  
Ihre Sicherheit

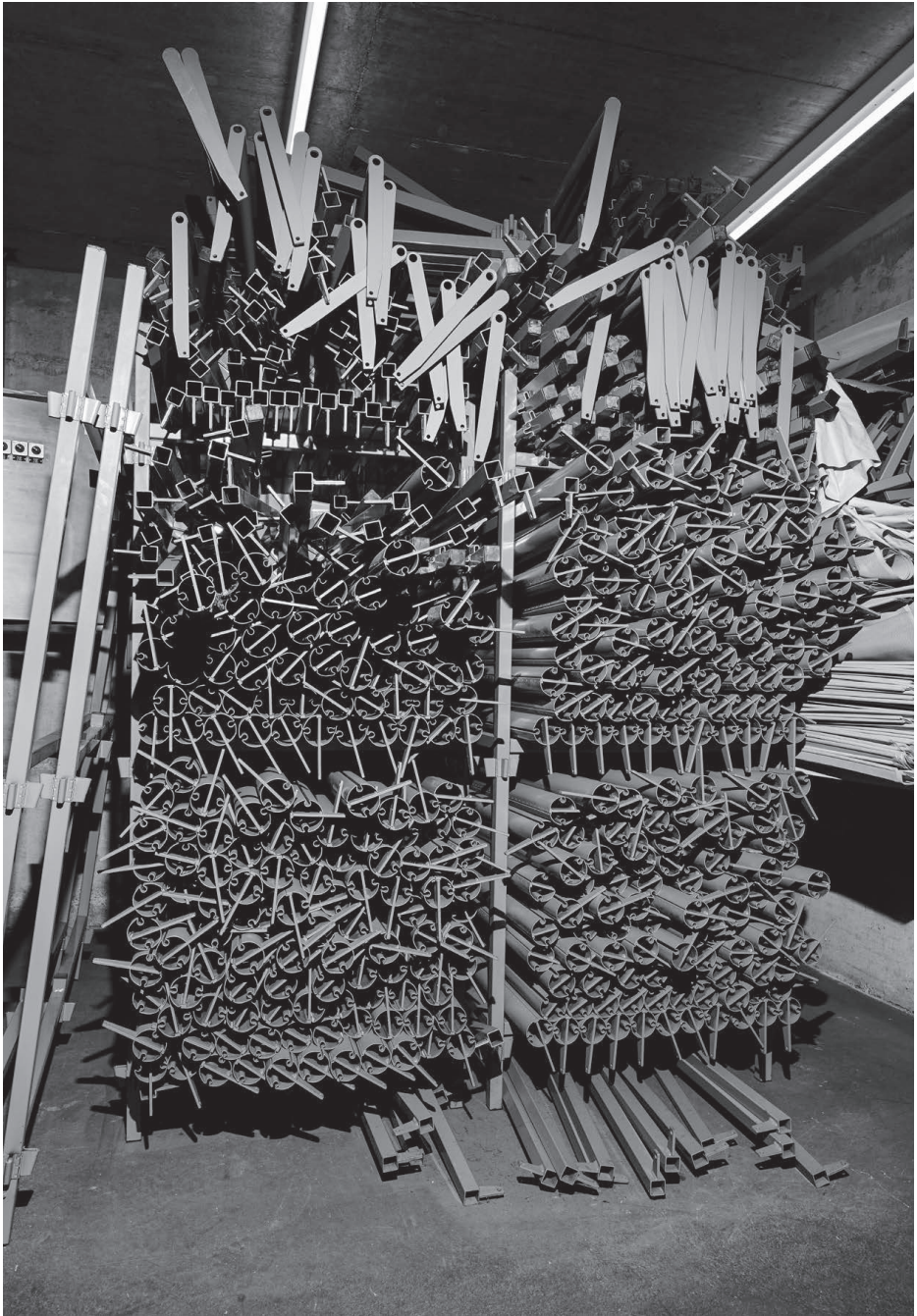


Im Bereitstellen von Schutzraum-  
plätzen zeigen wir unsere Vorsor-  
ge. In einer unruhigen Zeit ist  
es ein Gebot der Stunde, im  
Ernstfall die nötigen Vorkehrun-  
gen treffen zu können.  
Ab 1. Januar 1987 sind Eigentü-  
mer von Neubauten verpflichtet,

Schutzräume pro Schutzplatz mit  
fest eingerichteter oder demon-  
tierbarer Liegestelle auszurüsten.  
(Auch die meisten, schon beste-  
henden Schutzräume, müssen mit  
der Zeit mit Liegestellen ausgerü-  
stet sein). Diese Anordnung des  
Bundesrates wurde in einem ent-  
sprechenden Merkblatt an die

ph

F8) Advertisement, SCPO magazine, 1988



*F9) Beaulieu Bed Parts, Tanguy Caversaccio & Iskander Guetta, 2023*

Based on the digital reconstruction of both projects, the following illustrations allow for an estimation of elements and material volumes.

\*\*\*\*\*  
\*\*\*\*\*

# RECEIPT

CASE STUDY RESULTS SCALED

\*\*\*\*\*  
\*\*\*\*\*

CONCRETE 20'232'000 m<sup>3</sup>

STEEL 934'993'000 kg

GAS FILTER UNITS 569'469

EXCAVATED MASS 60'248'230 m<sup>3</sup>

CO EMISSIONS 5'433'590 t CO<sup>2</sup>-eq

\*\*\*\*\*

**SUBTOTAL: 370'000 Shelters**

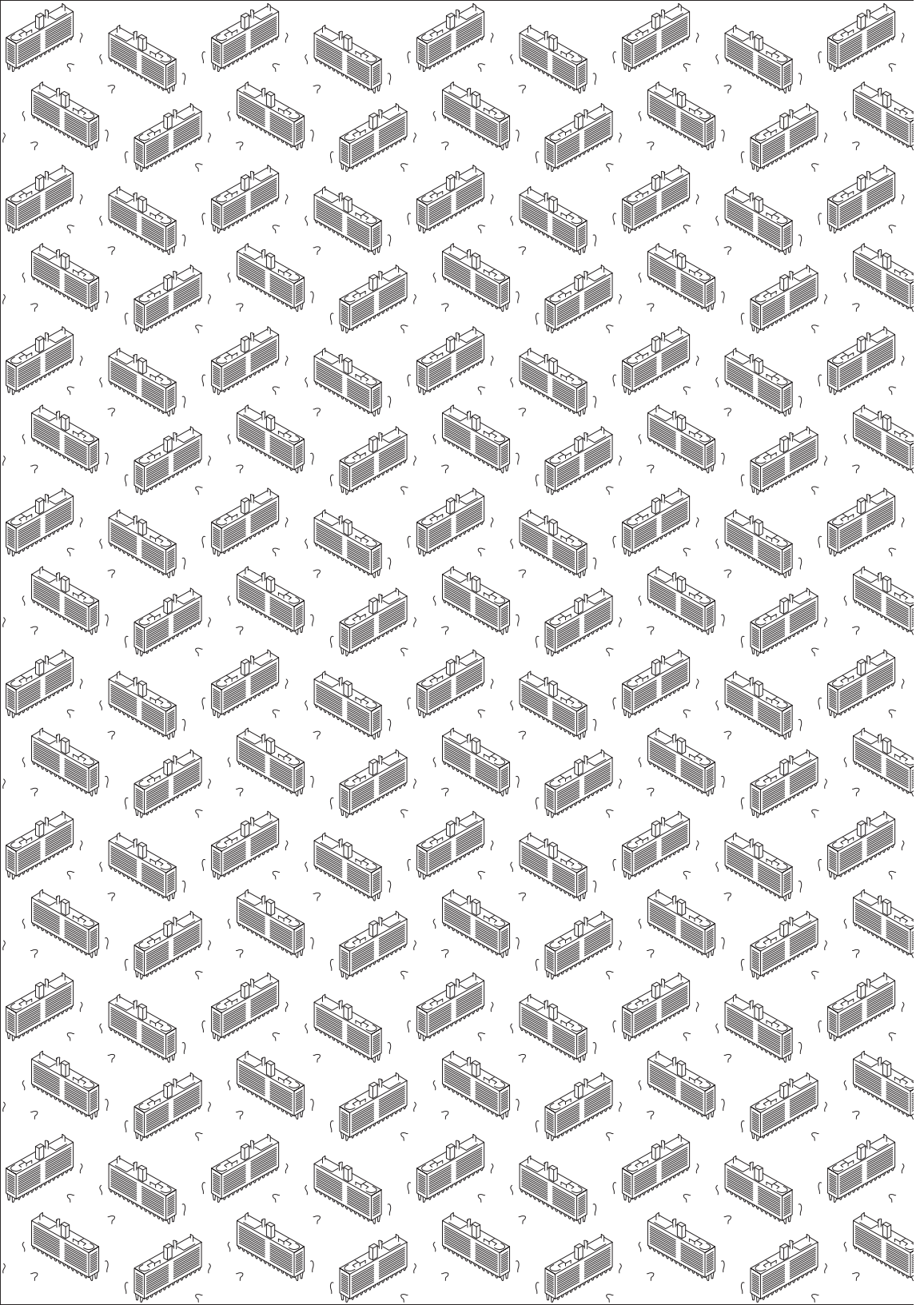
\*\*\*\*\*


# TOTAL:

# 12'000'000'000 CHF

+ 880'000'000.- renovation fund

\*\*\*\*\*





**Concrete**  
equivalent to

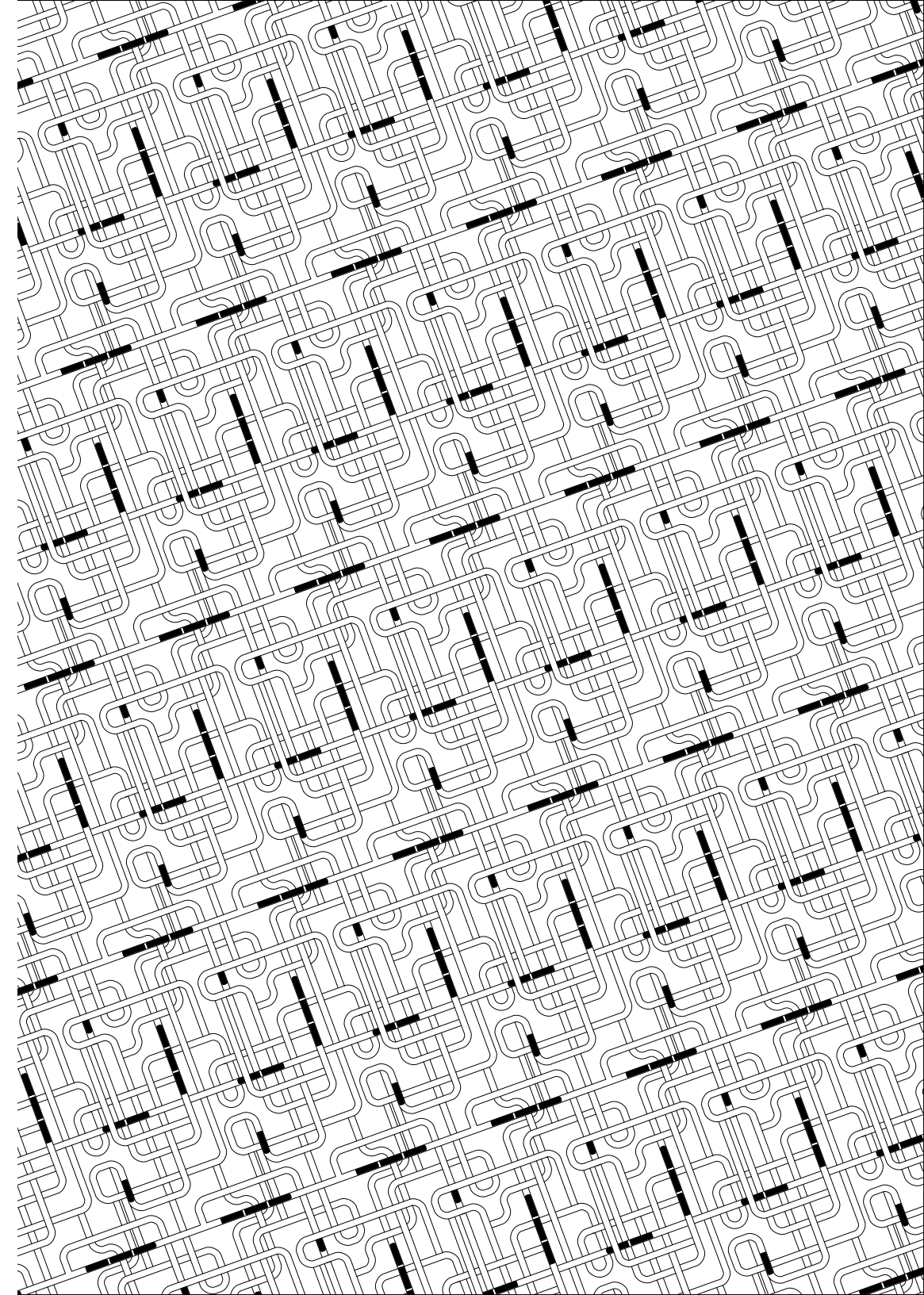
**1000 Unités d'Habitation<sup>59</sup>**

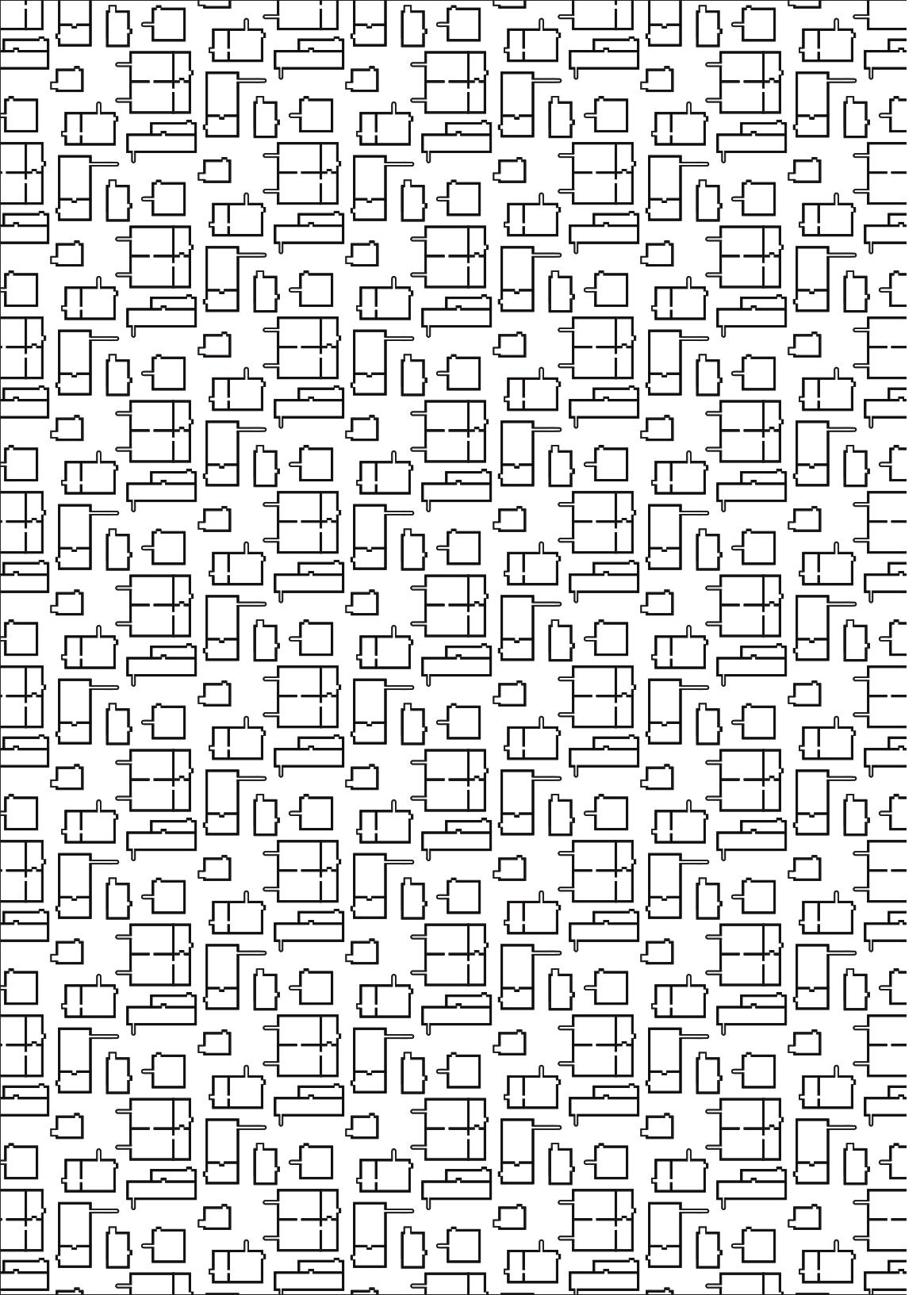
**for 1'500'000 inhabitants in total**

59. The «Unité d'habitation» is a concrete housing unit, designed by Swiss Architect Le Corbusier, built in Marseille in 1952.

**Steel**  
equivalent to  
**5000 km** of rail  
**1.5 x**  
the length of the SBB<sup>60</sup> rail network

60. The «SBB» (Swiss Federal Railways) is the biggest railway company operating in Switzerland.









# Conclusion

## *Who ordered?*

Swiss bunker construction was institutionalised through a significant political push starting in 1951. Despite initial setbacks, the lobbying apparatus carried by the Swiss Civil Protection Organisation had developed momentum that would last until the FOCP's creation. By the early 1960s, as economic conditions aligned and the construction boom accelerated, calls for more rigorous bunker standards grew stronger and resulted in the government's decision to mandate standardized mass shelter construction.

The newly created Federal Office for Civil Protection proceeded to establish its Working Group on Civil Protection Construction. Specialists were selected by the FOCP, a majority of which had ties to the energy sector, the military and the construction industry. Although self-described beginners in the matter of nuclear protection, the panel worked to produce results: Within roughly two years, under mounting time pressure, a report was submitted to the Confederation stating the construction measures to be taken against modern warfare, with calls for more research. A newly appointed commission replaced the working group to translate the group's findings into precise standards, resulting in the TWP norms.

### *Who poured?*

Coinciding with the peak of the housing boom in Switzerland, the shelter construction industry scaled up rapidly thanks to the new shelter norms. A circular flow of funding, advertising and contracting turned the Confederation's ambition into an efficient process, lucrative for the private companies involved. Switzerland's per capita expenses for civil protection ranked first worldwide. Until full population coverage of bunkers had been reached, this ecosystem worked uninterrupted, only to be questioned in the early 21st century and facing a serious moratorium for the first time in 2012 due to the intervention of political parties and individual actors.

### *Who paid?*

Substantial resources were channelled into building Switzerland's bunker network. Throughout the 20th century, these measures were considered a rational decision: As long as the program remained financially viable, its scale was accepted. An estimated 12 billion CHF were spent on building and maintaining the system, financed through a mix of public subsidies and private household expenditure, and an additional 880 million in compensation payments.

The system is currently entering a different phase in 2026, as a significant share of the existing stock will reach the end of its expected lifespan and require major renovation by 2050.

Taken together, these questions on the state of shelter construction place Switzerland at a crossroads in civil protection policy. The country could maintain the existing network by replacing ageing technical components and selectively building new reinforced concrete civil protection bunkers to replace older ones. Or it could reassess the 60-year-old strategy: confronting the growing stock of underground concrete infrastructure that will reach the end of its expected lifespan by 2050, by reassessing material, construction and occupancy choices. Inevitably, this process would generate a contemporary alternative proposal for civil protection construction suited to the century ahead.



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AI: This work was produced with generative AI assistance. Where AI tools were used (e.g., for proofreading, translation, or summarising), their outputs were verified against the cited primary sources, and responsibility for all content and references remains with the author.



# Iconography

All of the links mentioned were last accessed on January 6, 2026

## Figure 1

Chiquet, Bernhard. "Zeichnung." In *Schutzraum Schweiz: Mit dem Zivilschutz in die Notstandsgesellschaft*. By Albrecht, Peter, Gross, Andreas, Gross, Hohler, August E., Hug, Peter, Lauterburg, Wolfgang, Schnyder, Thomas, Stocker-Meier, Monika, Stöcklin, Jürg, Suchomski, Joachim, and Tanner, Jakob. (Bern: Zytglogge, 1988), 16.

## Figure 2

Zivilschutz- Fachverband der Städte und der Schweizerischen Gesellschaft für Kulturgüterschutz. "Basler Eisenmöbelfabrik AG Sissach. Stabelbare Klapptische and GM Diesel. General Motors Suisse S.S. Biel. Werbung" *Zivilschutz = Protection civile = Protezione civile. Zeitschrift des Schweizerischen Bundes für Zivilschutz* 21, no. 4 (1974): 128.

## Figure 3

Zivilschutz- Fachverband der Städte und der Schweizerischen Gesellschaft für Kulturgüterschutz. "Déshumidificateurs Krüger and Puch G AG. Werbung" *Zivilschutz = Protection civile = Protezione civile. Zeitschrift des Schweizerischen Bundes für Zivilschutz* 33, no. 4 (1988): 54.

## Figure 4

Zivilschutz- Fachverband der Städte und der Schweizerischen Gesellschaft für Kulturgüterschutz. "Notstrom Anlagen Aksa Würenlos AG. Werbung." *Zivilschutz = Protection civile = Protezione civile. Zeitschrift des Schweizerischen Bundes für Zivilschutz* 33, no. 10 (1986): 16.

## Figure 5

Zivilschutz- Fachverband der Städte und der Schweizerischen Gesellschaft für Kulturgüterschutz. "Branchenregister des schweizerischen Zivilschutzes." *Zivilschutz = Protection civile = Protezione civile. Zeitschrift des Schweizerischen Bundes für Zivilschutz* 33, no. 10 (1986): 68.

**Figure 6**

Fritz Friedli. "Umschlagsbild: Der Zivilschutz zählt auf die Mitarbeit der Frauen" *Zivilschutz = Protection civile = Protezione civile. Zeitschrift des Schweizerischen Bundes für Zivilschutz* 29, no. 3 (1981): 1.

**Figure 7**

Caversaccio, Tanguy and Guetta, Iskander. *ITAP 2084*. Lausanne: Bureau Culturel Vaud (2023): 9.

**Figure 8**

Zivilschutz- Fachverband der Städte und der Schweizerischen Gesellschaft für Kulturgüterschutz. "PH Huber AG.Werbung" *Zivilschutz = Protection civile = Protezione civile. Zeitschrift des Schweizerischen Bundes für Zivilschutz* 35, no. 5 (1988): 17.

**Figure 9**

Caversaccio, Tanguy and Guetta, Iskander. *ITAP 2084*. Lausanne: Bureau Culturel Vaud (2023): 23.

# Diagrams

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## **Creation of the FOCP**

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### **The 10 Men at the Table**

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### **Illustrating the Loop**

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## **The Receipt & Comparisons**

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