



08_interdisciplinarité & coordination

08.11.17

info@bernardcherix.ch

**COURS 07 :
INTERDISCIPLINARITÉ & COORDINATION**

THÈMES ABORDÉS

1. INTRODUCTION : SIA 2051 & COORDINATION

2. VISIONNEUSES D'.IFC

3. LE .BCF

4. FLUX DE TRAVAIL EN openBIM

COORDINATION / BIM NIVEAU DE MATURITÉ 2

5. COMPILATION AVEC SERVEUR ARCHITECTE

6. PROCESSUS D'EXPORTATION & IMPORTATION

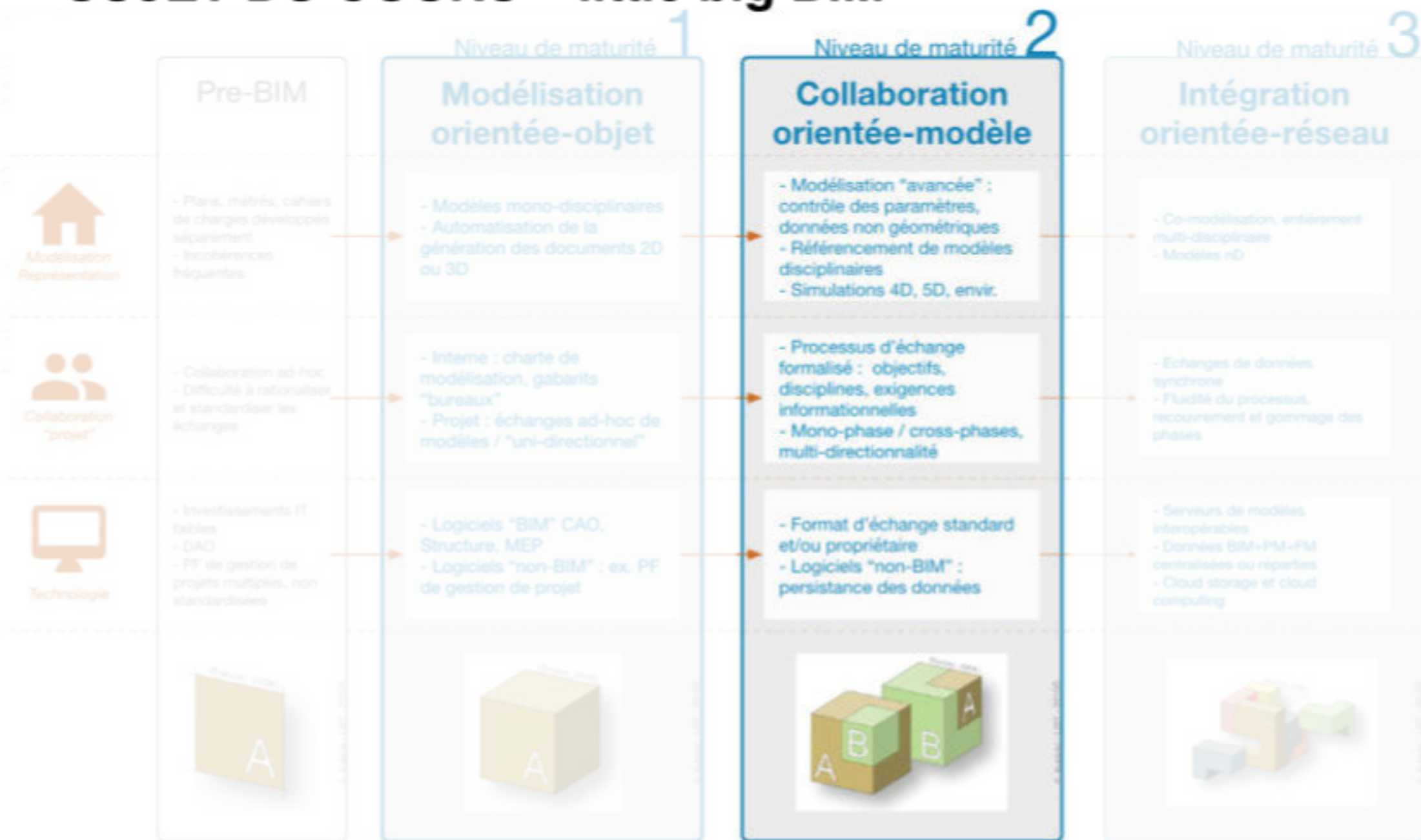
7. DÉTECTION DE COLLISION

VERS UN BIM NIVEAU DE MATURITÉ 3

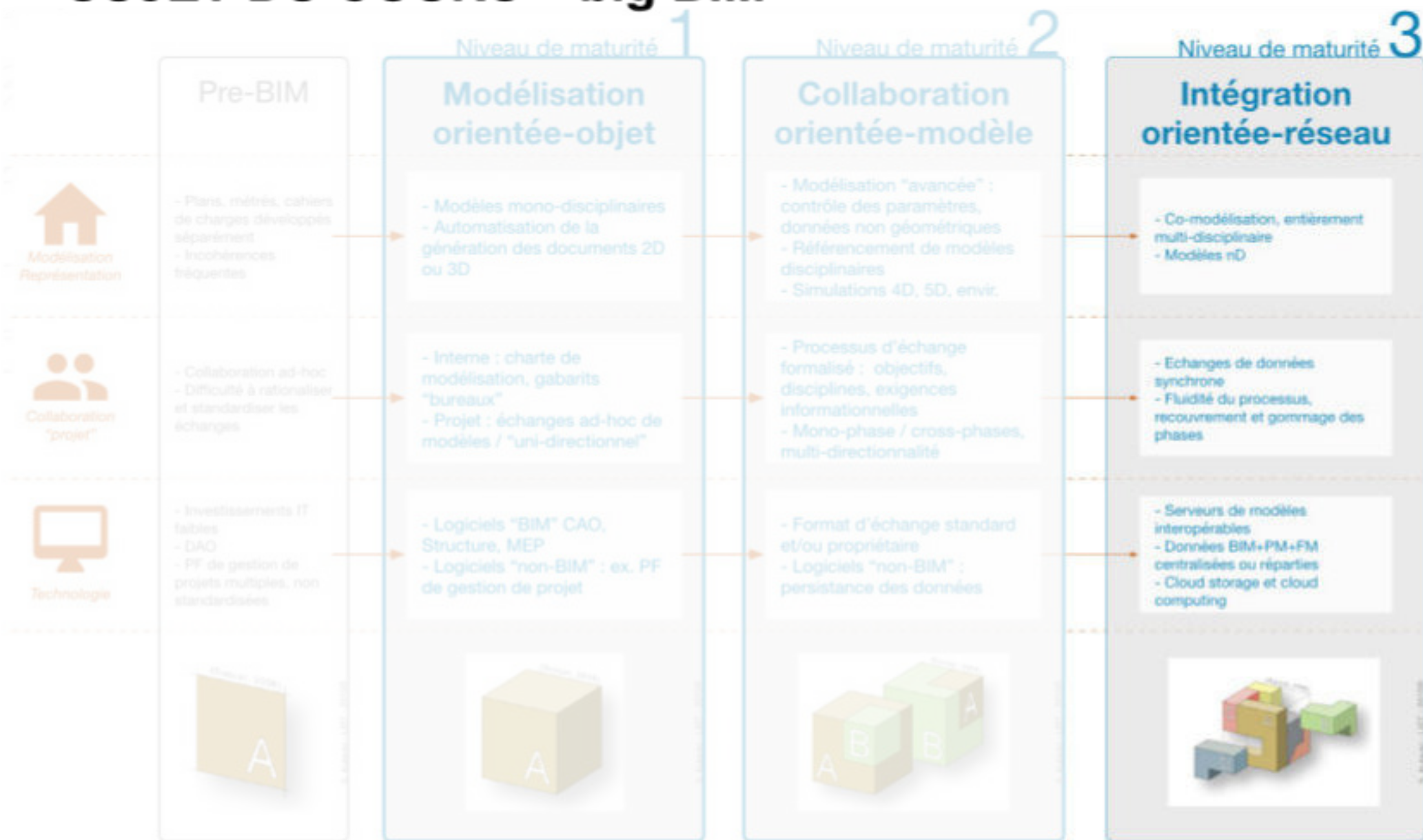
8. PLATEFORMES COLLABORATIVES

1. INTRODUCTION : SIA 2051 & COORDINATION

SUJET DU COURS « little big BIM »

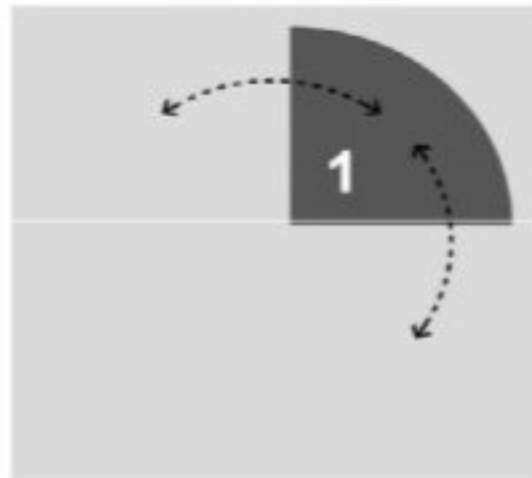


SUJET DU COURS « big BIM »



SIA 2051 : 4 « formes des modèles »

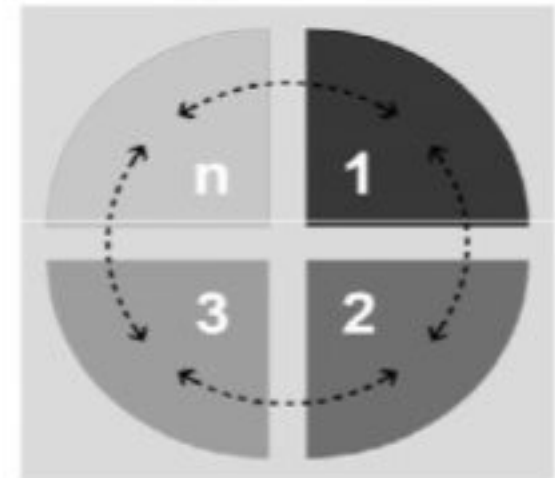
Modèle individuel



Propriétés pour la collaboration:

- Rien de spécial

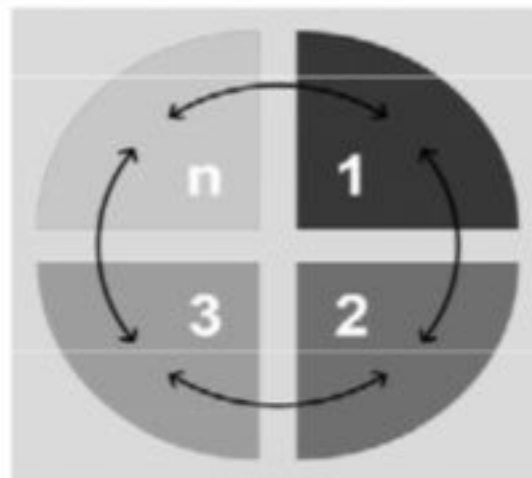
Modèles indépendants



Propriétés pour la collaboration:

- Voir si le modèle doit être réutilisé ultérieurement

Modèle de coordination / Modèles des spécialistes et modèles partiels harmonisés



Propriétés pour la collaboration:

- « open & close BIM » possible

Un modèle commun



Propriétés pour la collaboration:

- Uniquement possible dans une famille logicielle « closed BIM »

LE DANGER DU closedBIM

CROSS

Confidential Reporting on Structural-Safety

For an introduction to CROSS see www.structural-safety.org. Email: structures@structural-safety.org

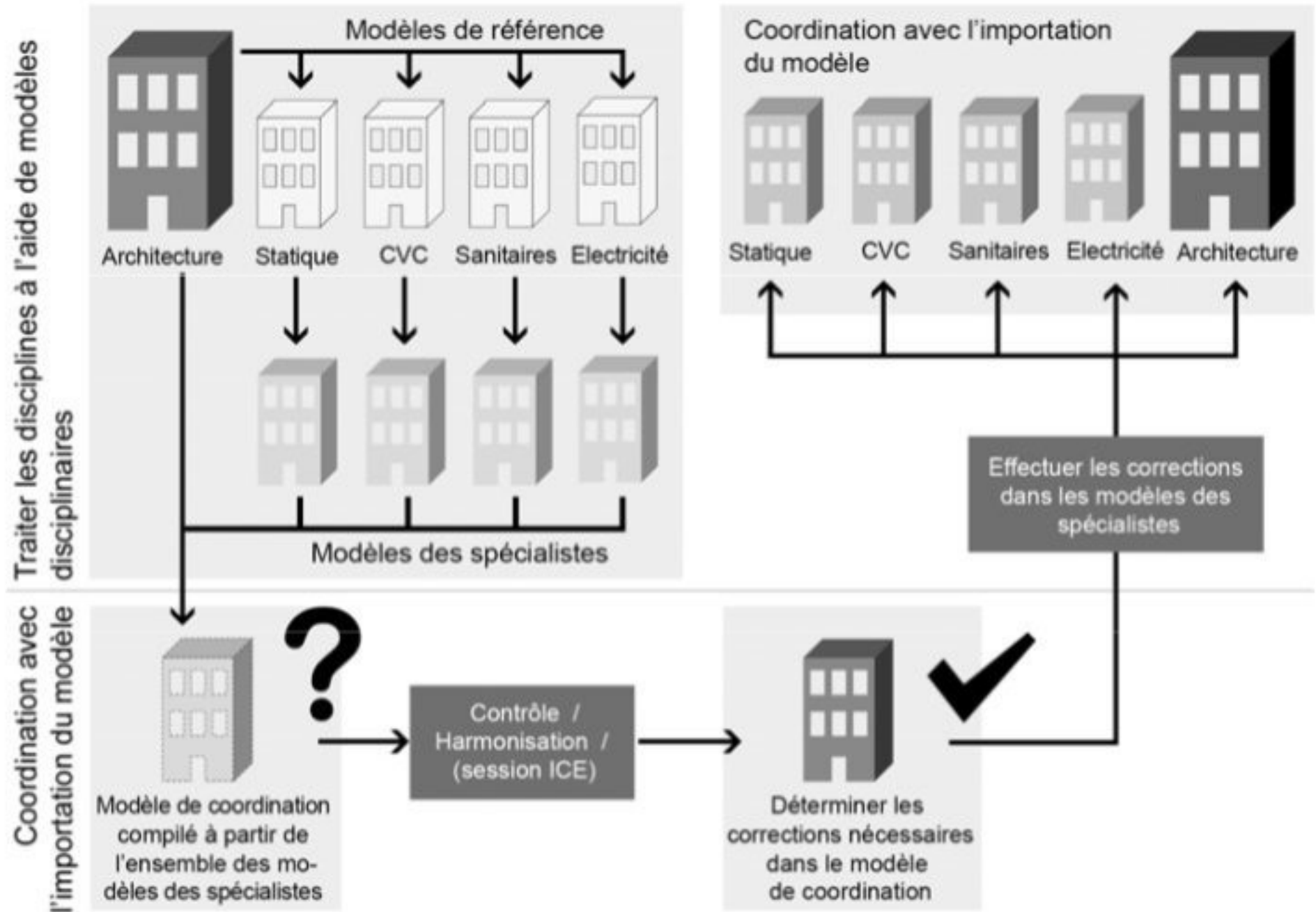
NEWSLETTER No 45, JANUARY 2017

614 COLUMNS MISSING DUE TO 3-D MODELLING

A new 8-storey residential concrete frame building is being constructed and several columns have been omitted from the ground and first floor level drawings, says a reporter. Without the columns, a 225mm thick RC slab was being asked to span up to 14m. Some of the missing columns were spotted by the concrete frame company's project manager. Others were not immediately obvious due to transfer structures and column plan positions changing up the building. Consequently, these columns were not built by the contractor, who continued to prop off the slab in the usual way during construction of the upper floors. The consulting engineers cited the use of BIM modelling software as the reason for these serious omissions. Is the use of 3-D modelling a distraction to producing clear, accurate and well thought out construction drawings?

[...] It is unusual to lose complete elements but it is possible that the columns were deleted by someone not appreciating their structural role. [...]

SIA 2051 : § 2.7 « procédure de coordination »



SIA 2051 : § 274 la coordination

2.7.4

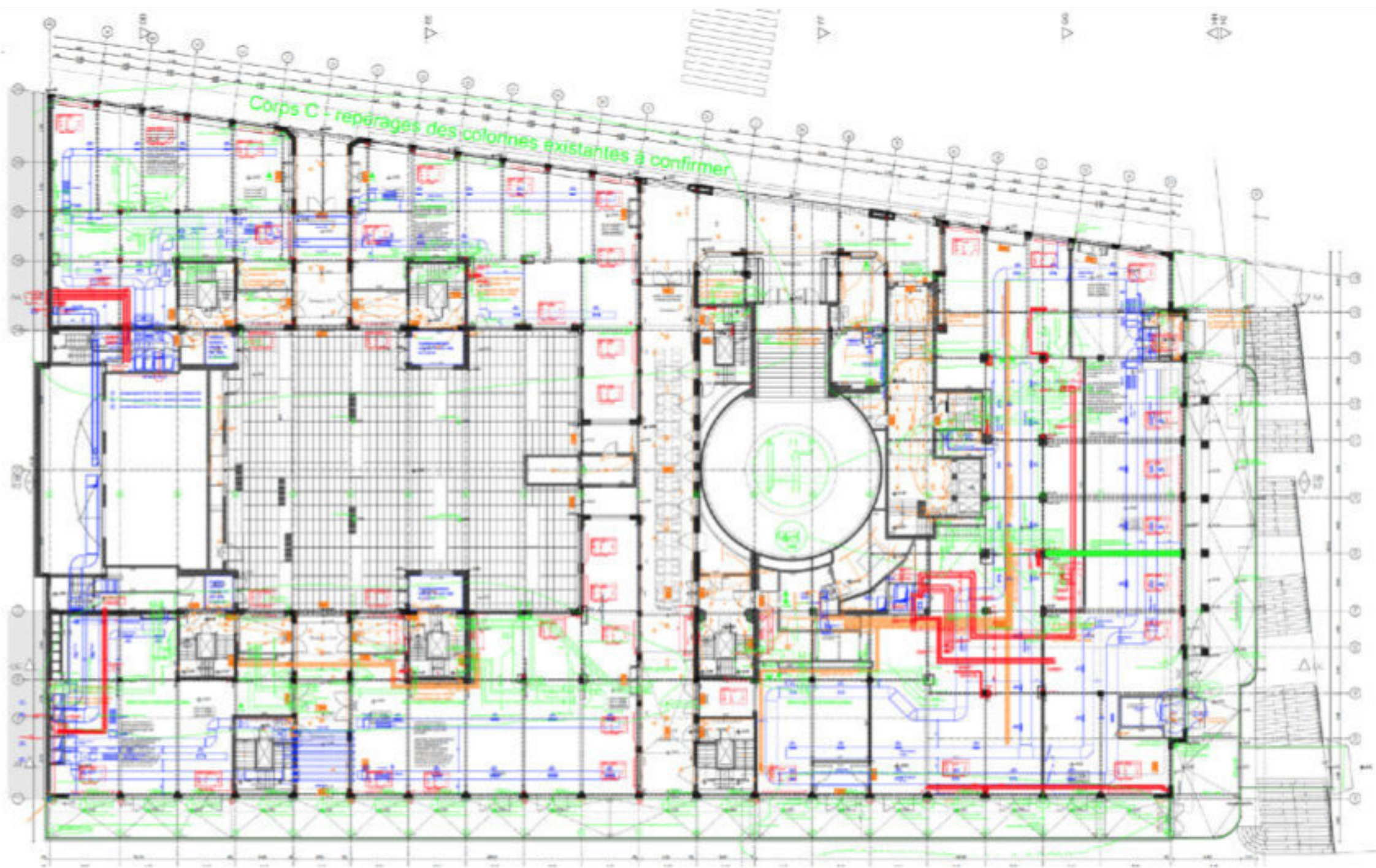
Coordination BIM et coordination technique des installations du bâtiment

2.7.4.1

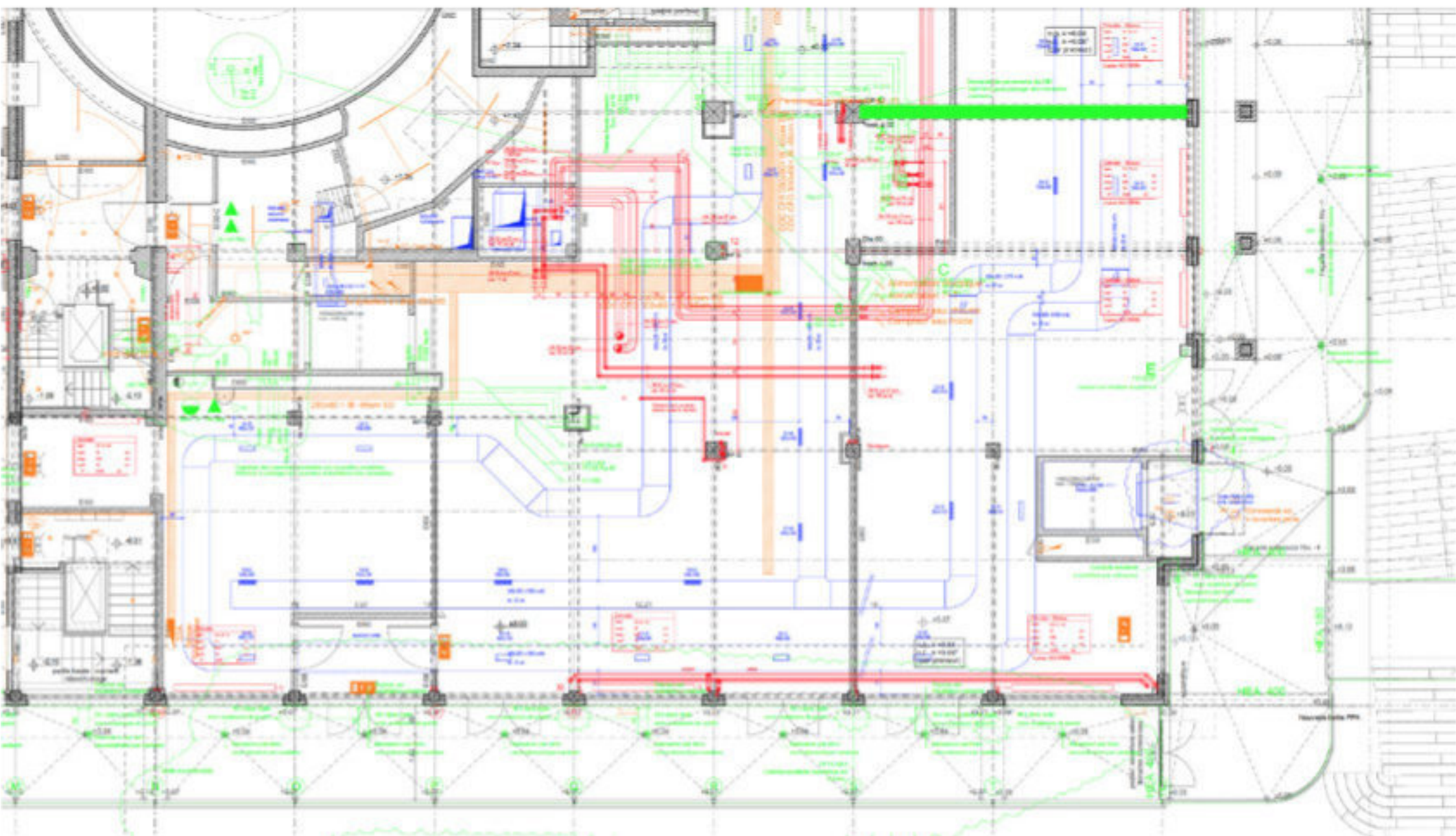
Coordination BIM et coordination technique des installations du bâtiment

La coordination technique des installations du bâtiment doit être différenciée de la coordination BIM. La coordination technique et spatiale des installations du bâtiment peut être soutenue par l'utilisation de la méthode BIM et optimisée. **C'est le responsable global ou le coordinateur technique qui est responsable de la direction de la coordination technique des installations du bâtiment.** Lorsque des modèles numériques de l'ouvrage sont utilisés pour la coordination technique des installations du bâtiment, les mesures correspondantes doivent être notées dans le plan de coordination BIM. Il faut en plus déterminer qui est responsable du regroupement des modèles des spécialistes et du contrôle de l'intégrité des modèles. En ce qui concerne les projets avec des exigences élevées en matière de coordination des installations du bâtiment, la coordination BIM peut être assurée par un coordinateur technique disposant de connaissances BIM correspondantes. Il assume ainsi les rôles de manager BIM et/ou de coordinateur BIM.

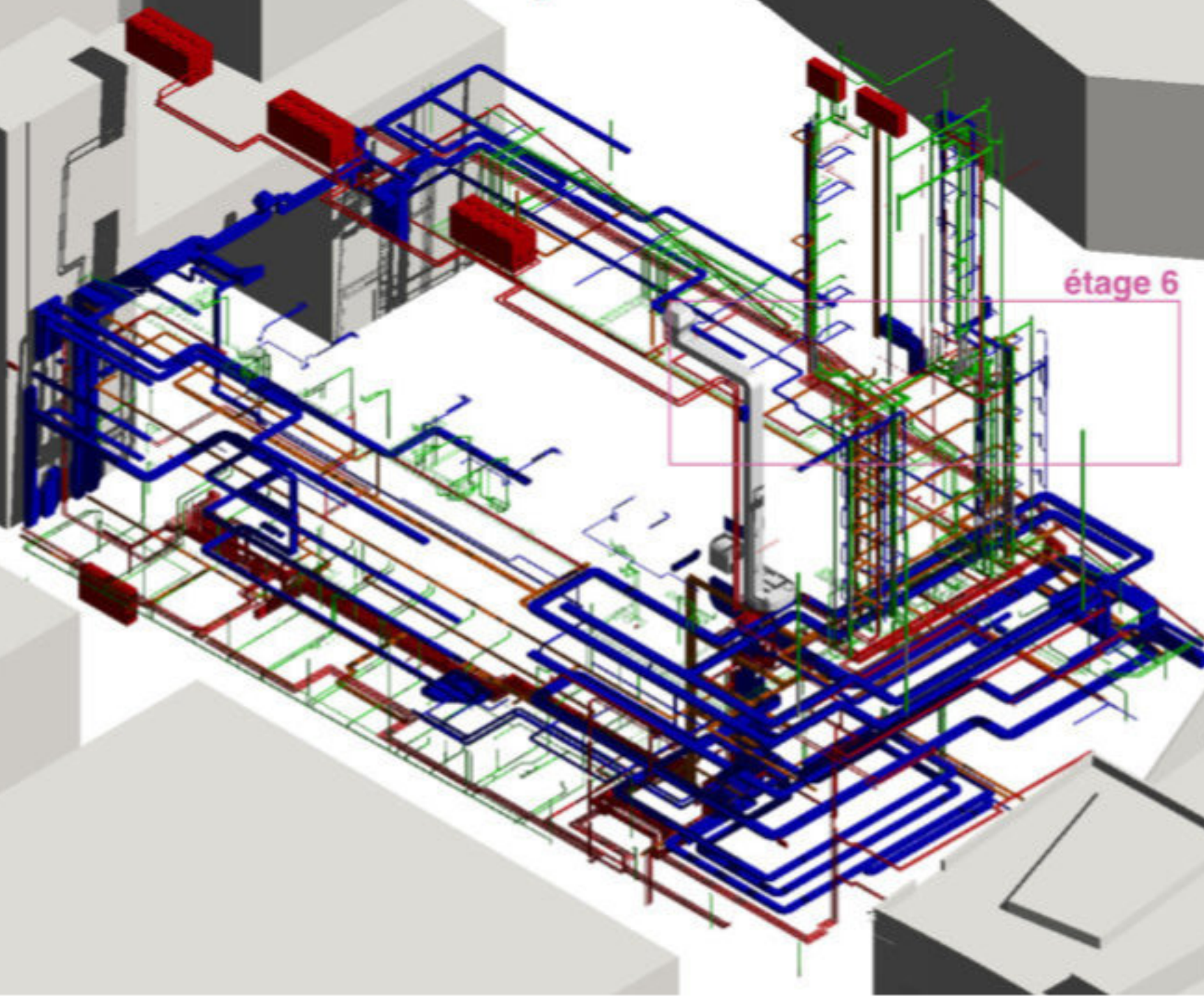
COORDINATION : exemple de plan à vérifier!



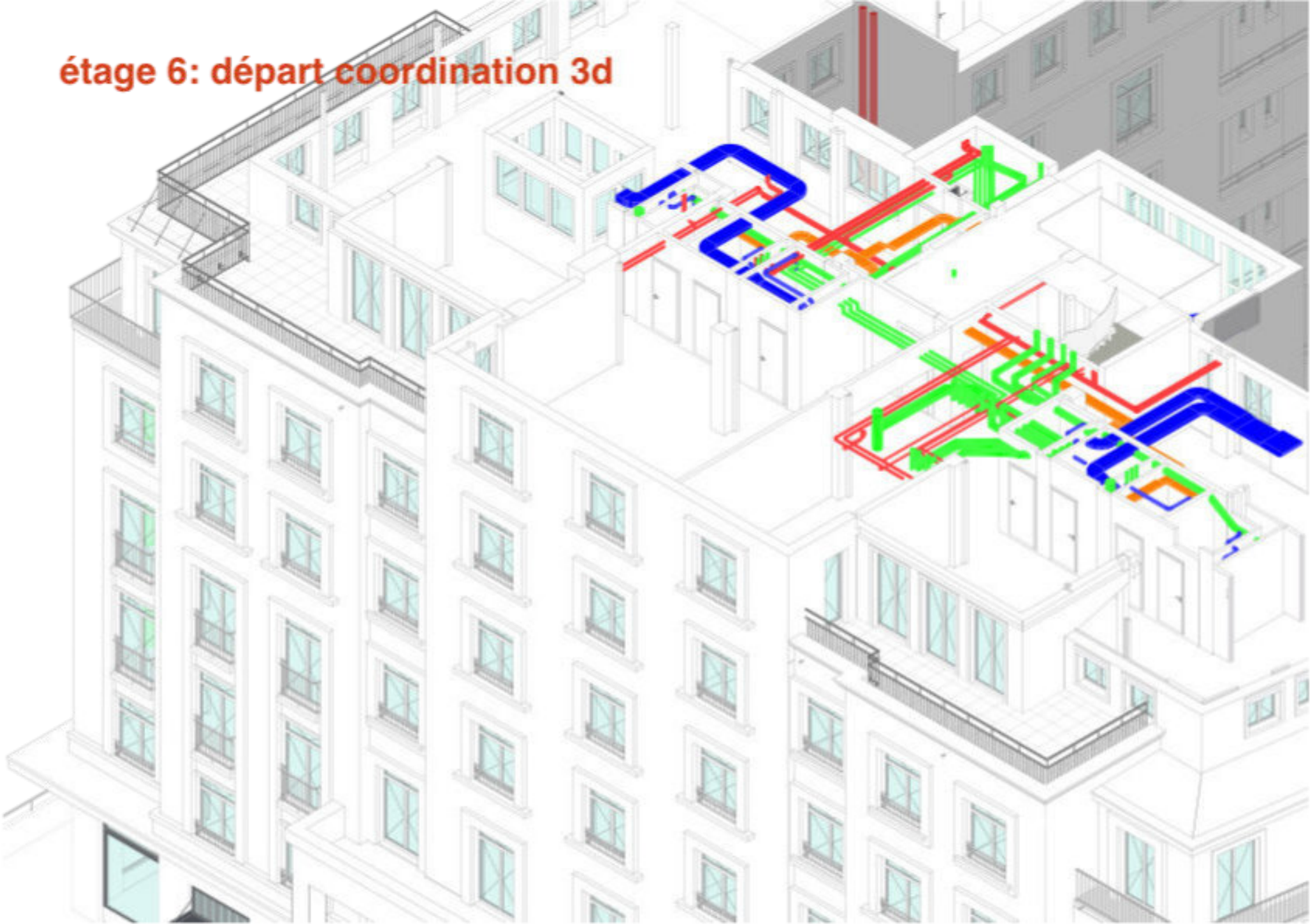
COORDINATION : exemple de plan (détail)

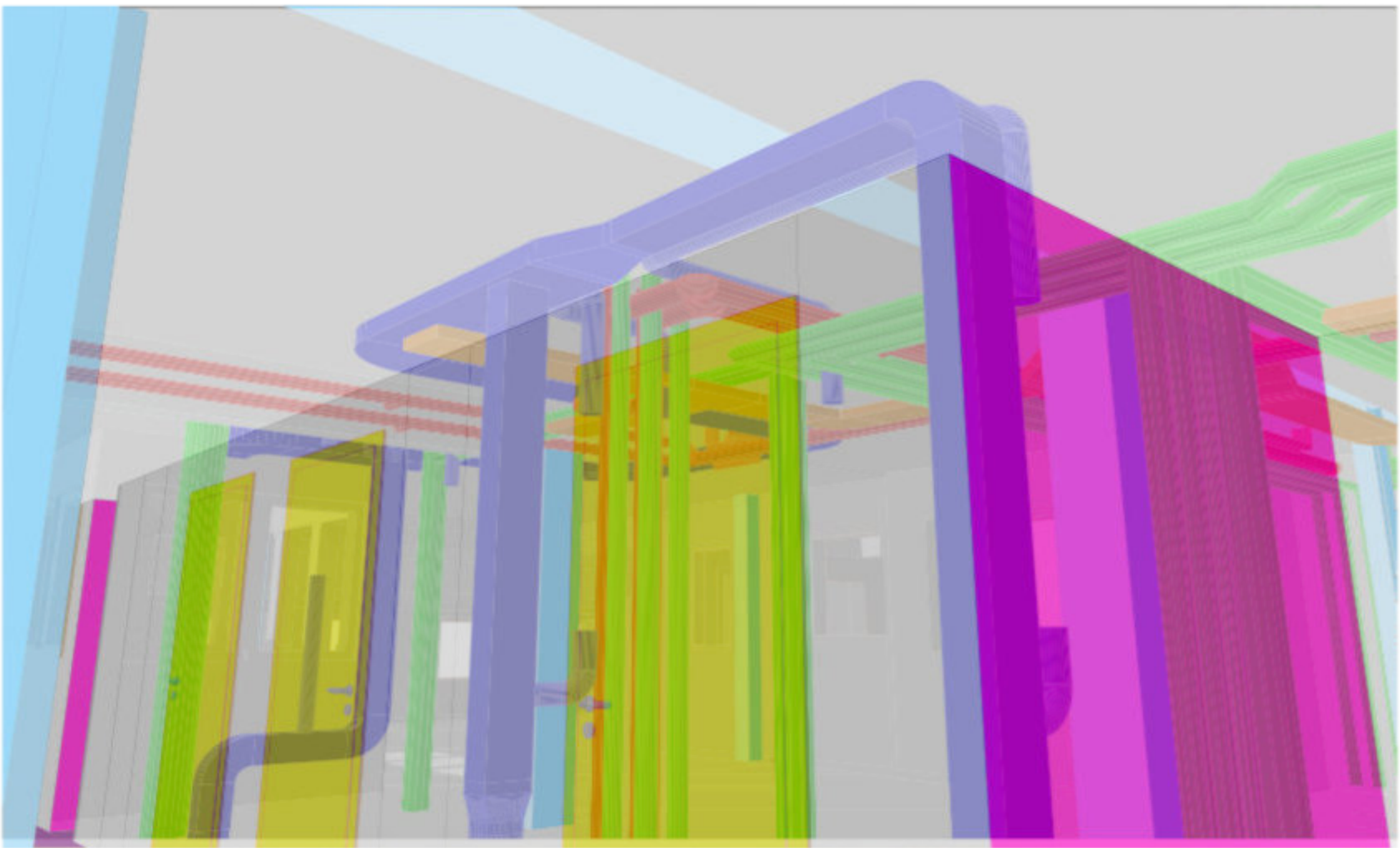


COORDINATION BIM Complexe Bel-Air



étage 6: départ coordination 3d







2. VISIONNEUSES D'.IFC

CERTIFICATION DE LOGICIEL PAR DOMAINE



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Implementation Support Group

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All Applications by Category

This is a filtered list, by primary functional category, of all software applications/utilities in the IFC-Compatible Implementations Database. These applications/utilities are purported, by their developers, to provide IFC import and/or export functionality. The intent of the database is to track all such applications/utilities, providing an official, centralized resource for the public and development community interested in IFC. The buildingSMART ISG is responsible for the creation and maintenance of this database, but due to the fluid nature of software development and the volatility of the AEC industry, it is possible that information will be outdated, at times. Vendor and public feedback about the contents of the database is greatly appreciated and can be directed via the contact link at the upper right-hand corner of this page.

Search:				
	Type	Name	Import/Export	Url
+	Architectural			
+	Building Performance Energy Analysis and Simulation			
+	Building Services			
+	Construction Management			
+	Data Server			
+	Development Tools			
+	Facility Management			
+	General Modeling			
+	Geographic Information System			
+	Model Viewer			
+	Other			
+	Structural			

Showing 1 to 204 of 204 entries.

[View as static table](#)

Implementation

- get involved
- first steps and tools
- IFC2x3 Impl guidance
- IFC4 Impl guidance
- Implementer's community
- accompanying documents
- frequently asked questions
- Implementations
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Jul 15, 2016
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IFC Dev Blog

IFC4 Add2 published
Jul 15, 2016
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VISIONNEUSES D'<.IFC> (non exhaustif):

- SOLIBRI MODEL VIEWER



- DDS CAD VIEWER



- TEKLA BIMsight



- REVIZTO

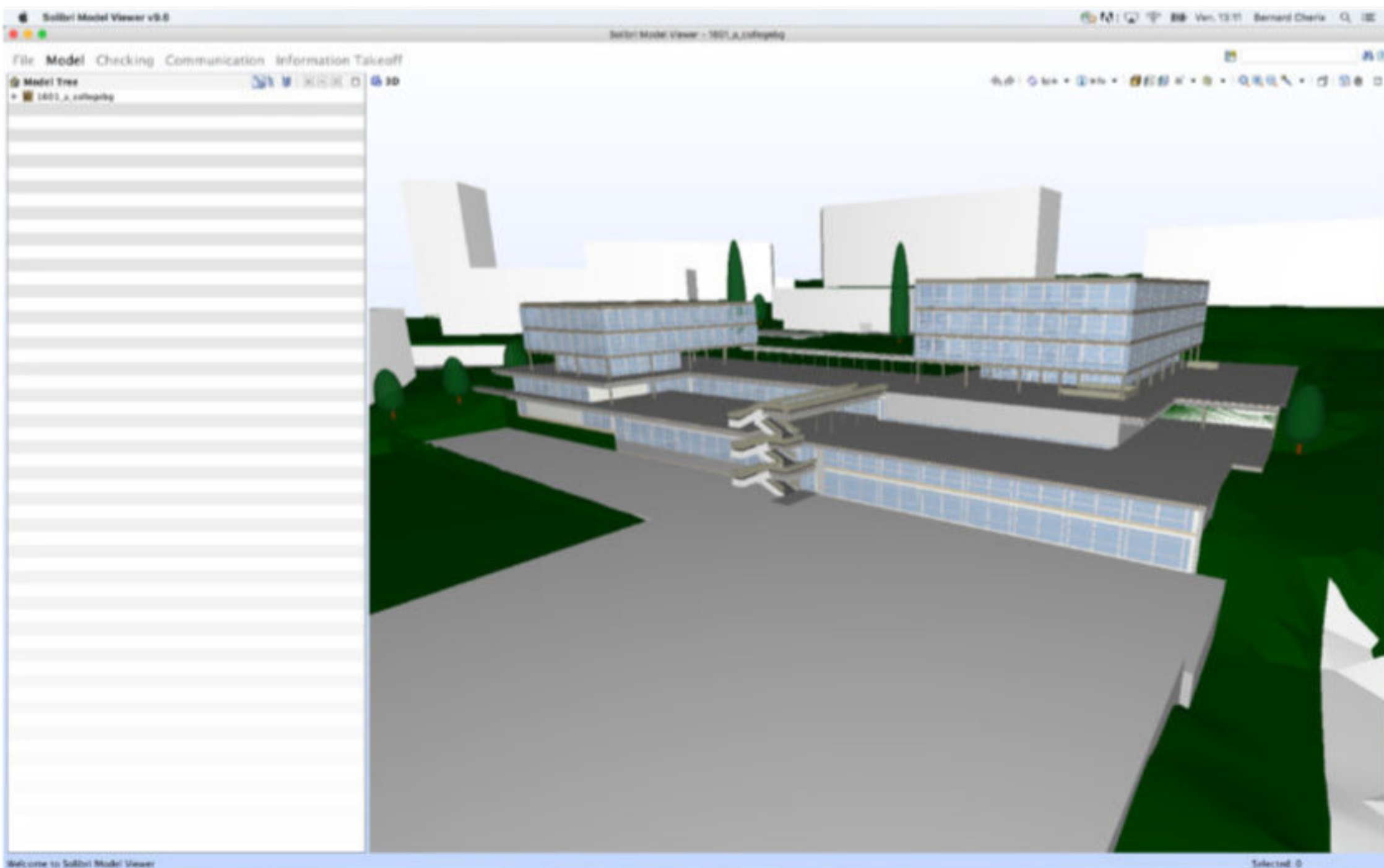


SOLIBRI MODEL VIEWER

Nemetschek

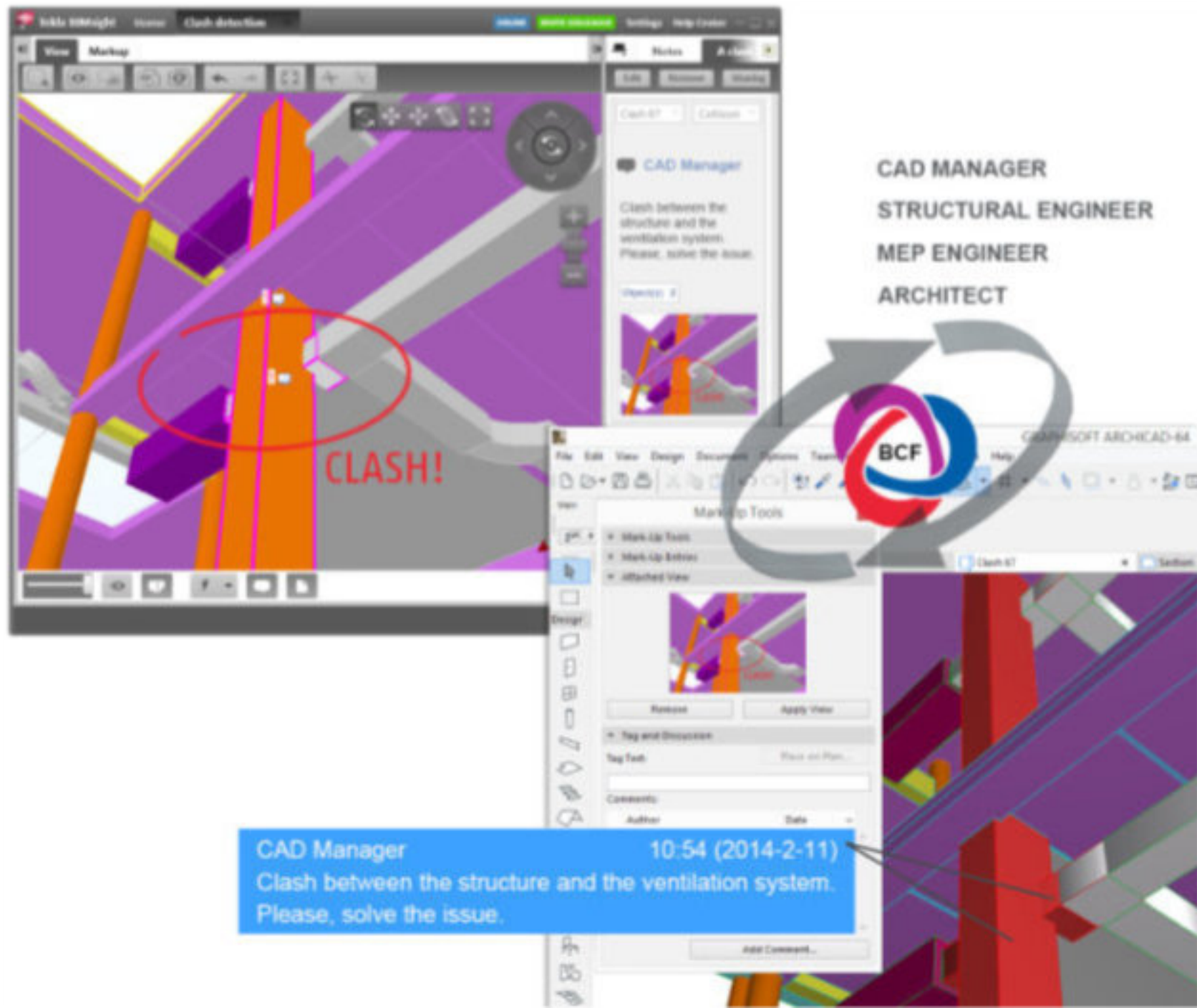


POUR CONTRÔLE VISUEL RAPIDE D'IFC: SOLIBRI



3. LE BIM COLLABORATION FORMAT (.bcf)

BIM COLLABORATION FORMAT : outil d'annotation



EXEMPLE D'USAGE: 2 maquettes .ifc compilées

Safari Fichier Édition Présentation Historique Signets Fenêtre Aide

13 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

portal.bimplus.net

BIMPLUS

EPFL Ecole Polytechnique Fédérale Lausanne - bernard.charix@epfl.ch 16-II_GC_collégobg

Recherche

Sujets (1)

Type	Titre	Auteur	Personne responsable	Modifié	Date d'échéance	Priorité	Statut
Problème	Déplacer structure	Bernard Charix	Matteo Rebelli	20/10/2016	18/10/2017	Moyen	Quart

Déplacer structure

Propriété de la tâche

1 objets sélectionnés

Description:

Portion structure T380m trop à gauche.

Projet: Moyon

Statut: Quart

Personne responsable: Matteo Rebelli (EPFL)

Email CC: alain.murdo@epfl.ch, val.carr@epfl.ch

Date d'échéance: 18/10/2017 227 jours 8 heures dépassés!

Type: Problème

Étiquette:

Navigation

ORIGINE STRUCTURE À CORRIGER

Menu

Fichier

Édition

Présentation

Historique

Signets

Fenêtres

Aide

Ver. 09.11 Bernard Charle

0 perat@impk.net

Échéance

Priorité

Statut

2017

Moyen

Ouvrir

0

0

0

0

Propriété de la tâche

1 objects selected

Éditer

Description:

Position structure 720cm trop à gauche.

4. FLUX DE TRAVAIL EN openBIM

MODÈLES PROPRIÉTAIRES & MODÈLES .IFC

maquette paramétrique

maquette d'échange

modèle propriétaire

publication

modèle non modifiable .IFC

GÉNIE CIVIL



ARCHITECTE



TECHNIQUES DU BÂTIMENT



BIM POUR COORDINATION

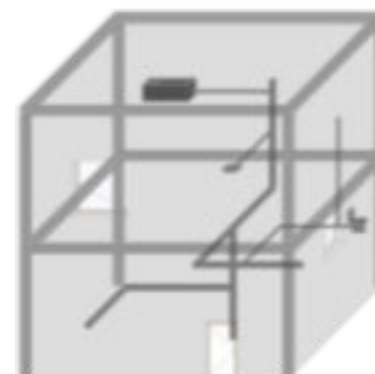
a. BIM Niv. 3 ou closedBIM
- réaliste ?



b. COORDINATION ARCHITECTE
- maquettes .ifc chez architecte



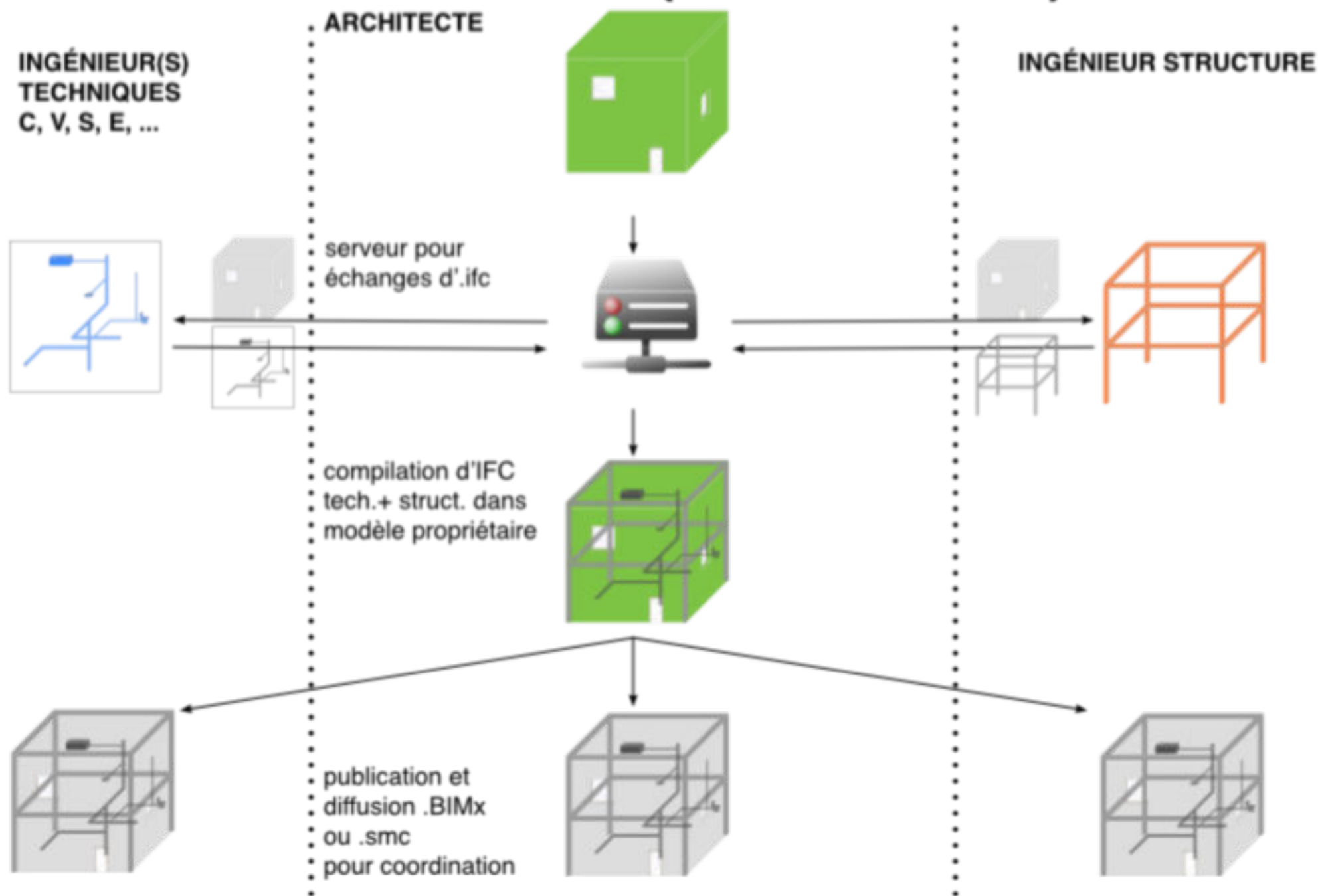
c. coordination conjointe
- toutes maquettes .ifc compilées



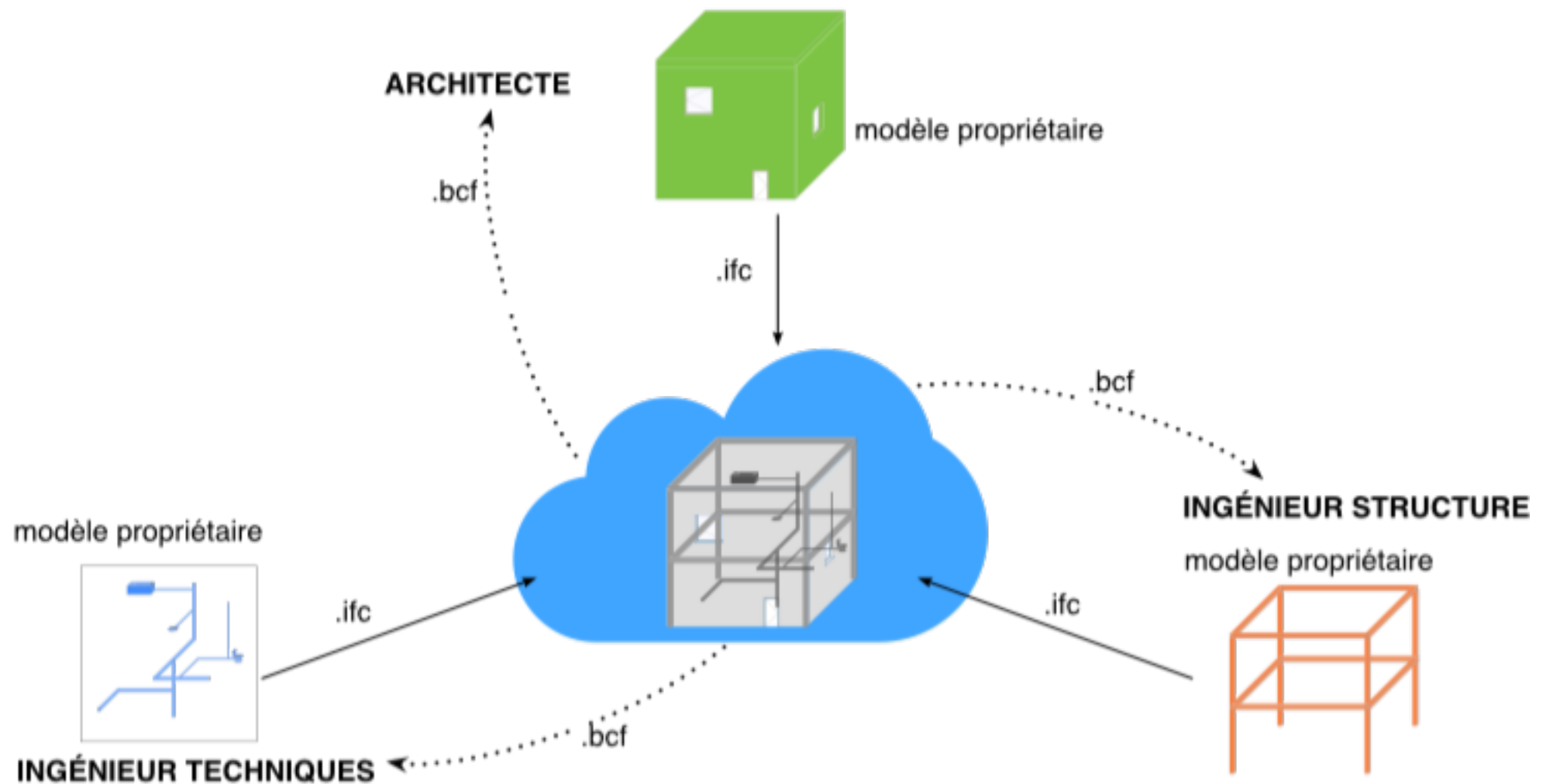
QUATRE EXEMPLES DE FLUX DE TRAVAIL

1. SERVEUR ARCHITECTE (cp. échanges .dxf)
2. PLATEFORME COLLABORATIVE (nuage informatique)
3. MAQUETTE DE CONTRÔLE DE COLLISION
4. SYSTÈME EMBARQUÉ

1. SERVEUR ARCHITECTE (i.e. BIM Bel-Air) sans BCF

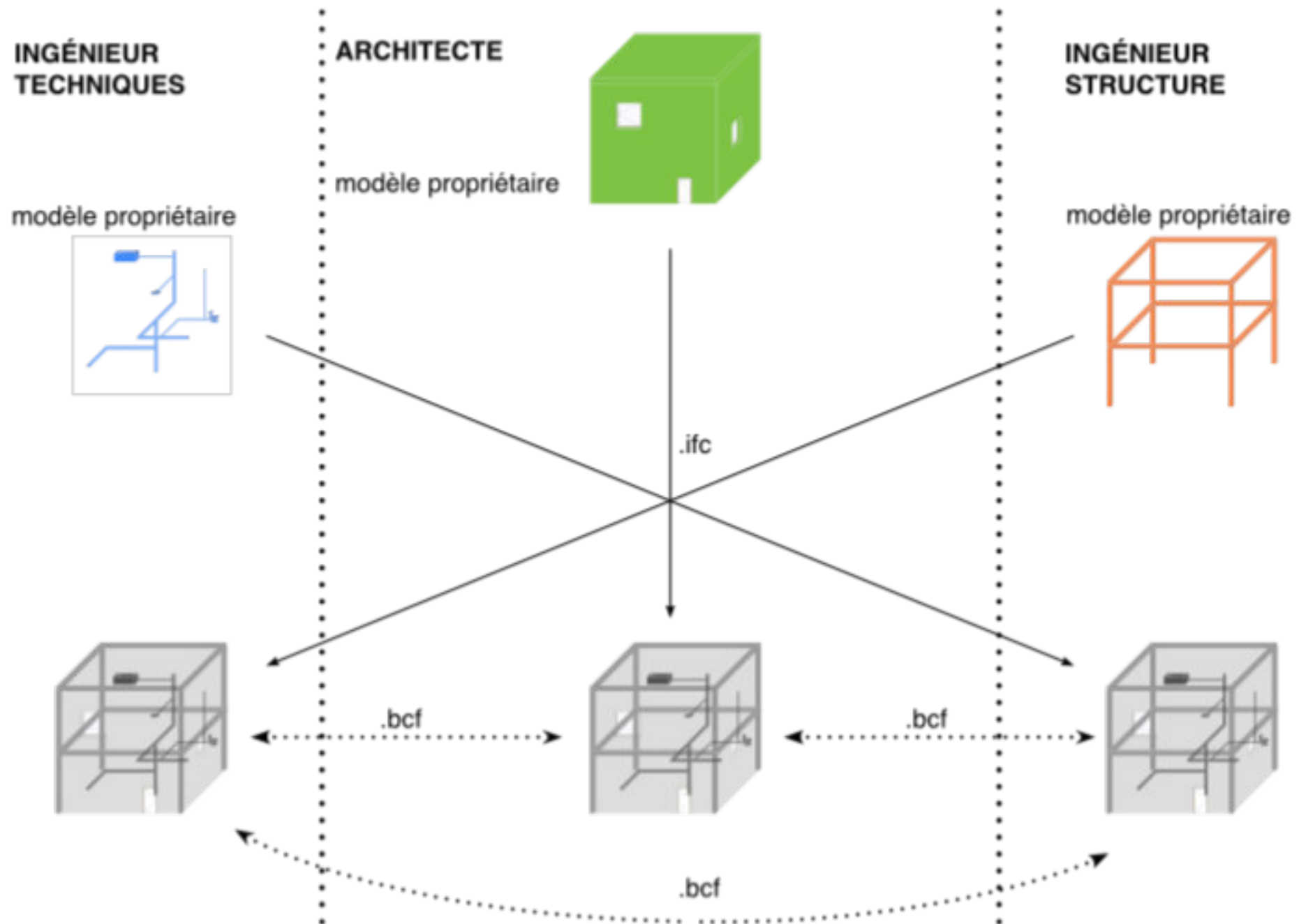


2. NUAGE INFORMATIQUE -plateforme collaborative- i.e. BIM+, Trimble connect

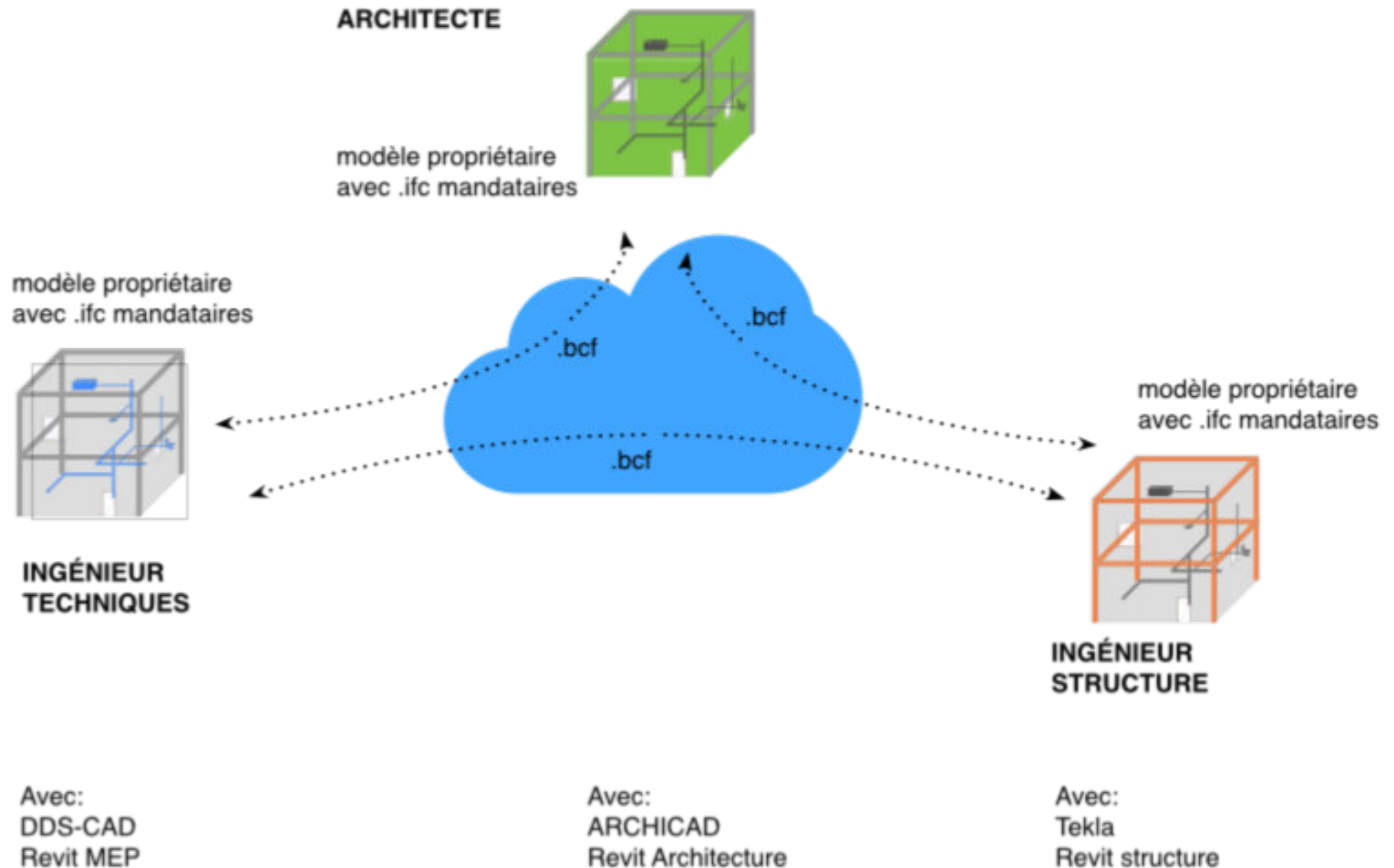


⚠ pas de serveurs « cloud » en Suisse

3. MAQUETTE DE CONTRÔLE COLLISION (Solibri, Navisworks...)

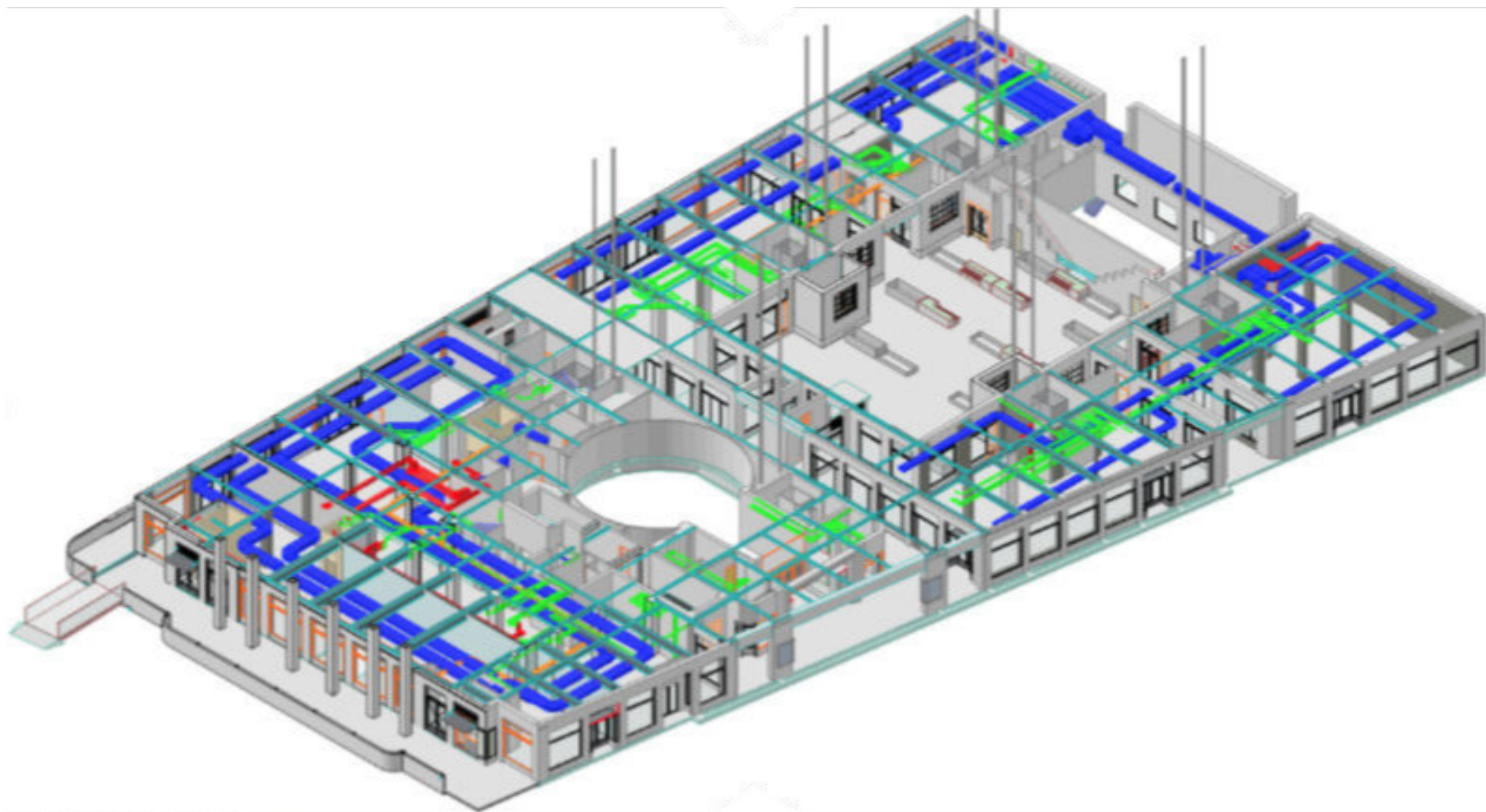


4 .SYSTEME EMBARQUE (i.e. BIMcollab)

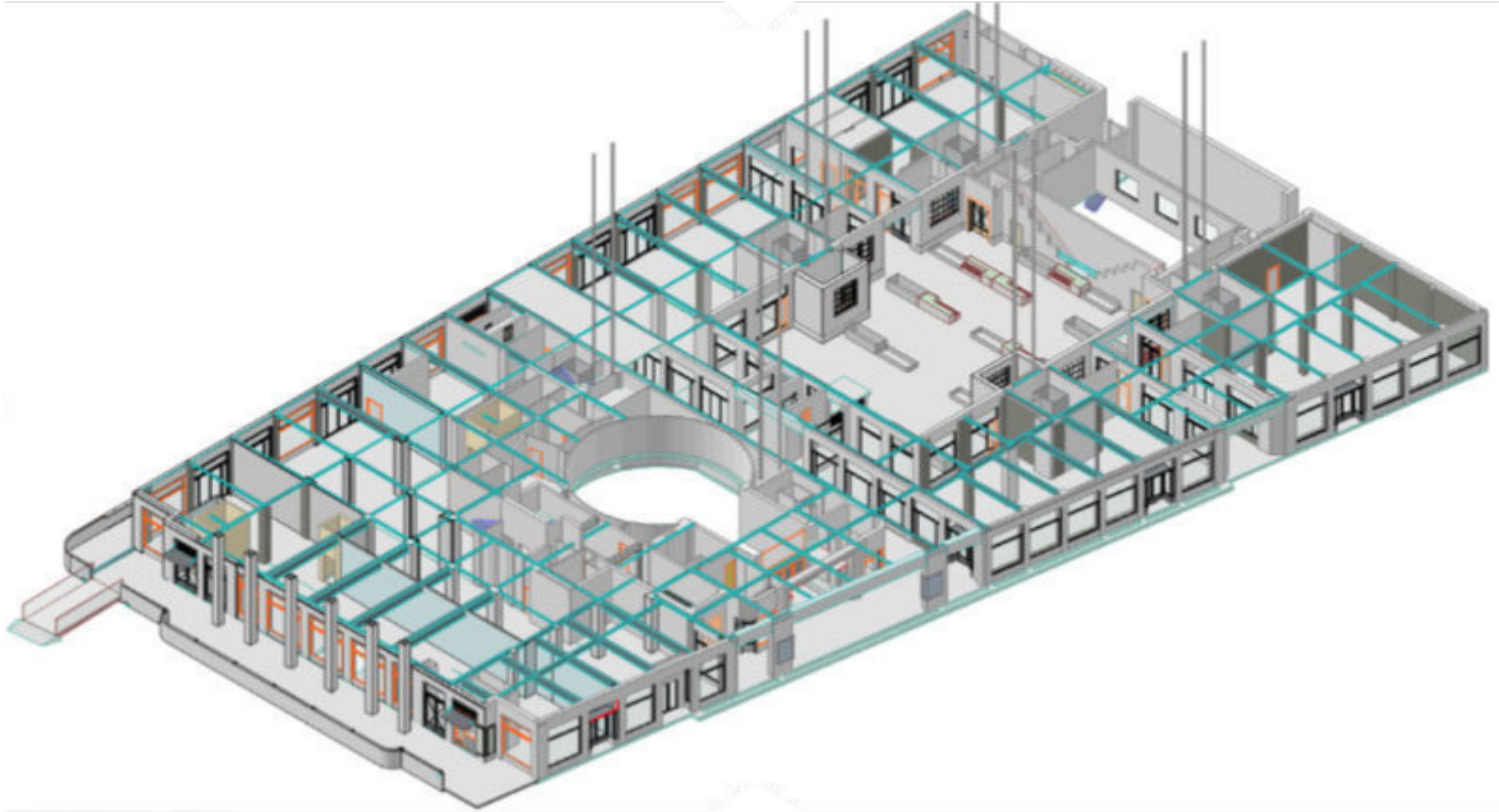


BIM niveau de maturité 2 (modèles indépendants)
5. COMPILATION AVEC SERVEUR ARCHITECTE

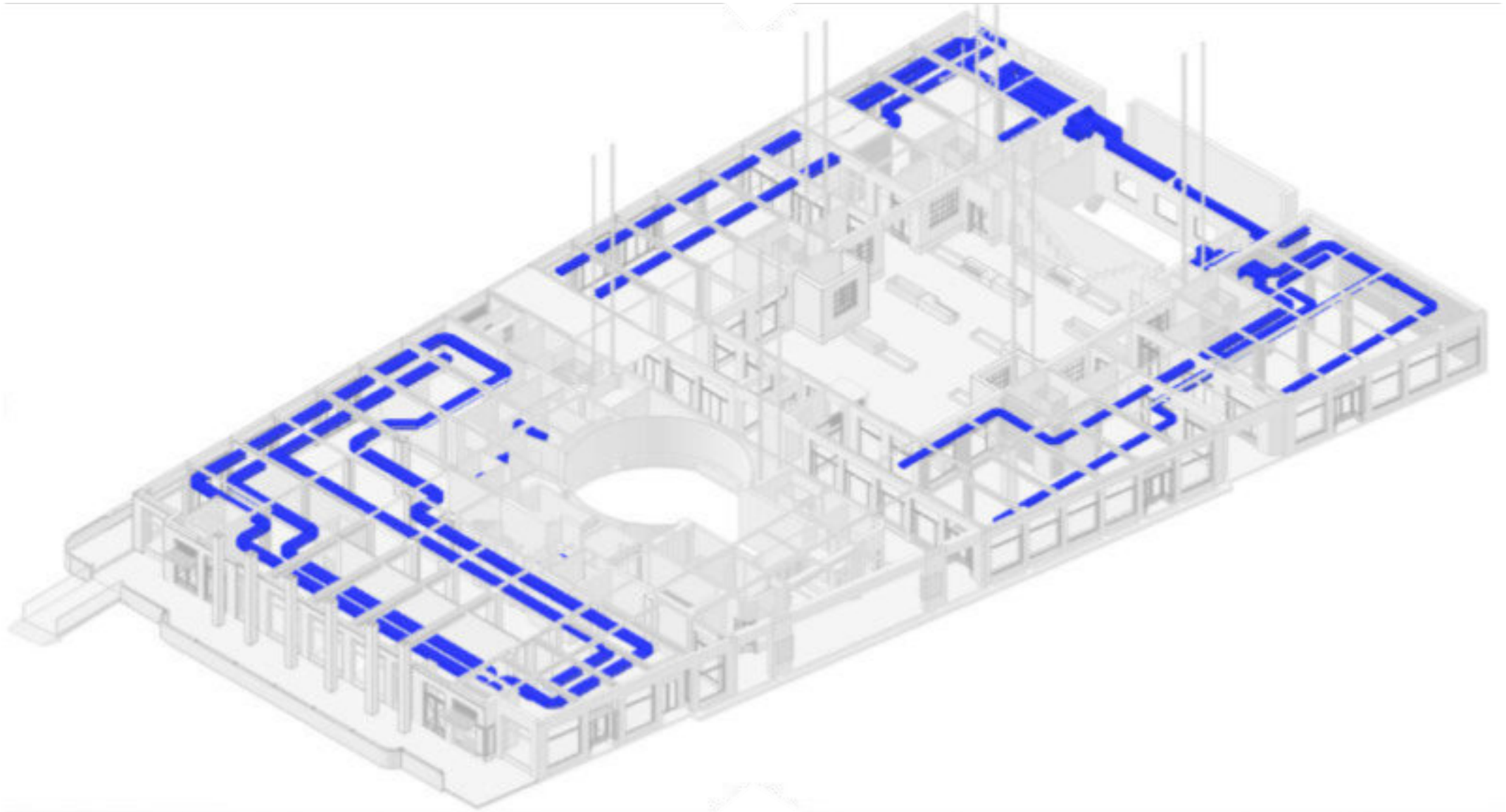
COMPILATION DE MAQUETTES EN 3 TEMPS



1. ÉLABORATION DE LA 1^{ère} MAQUETTE PAR ARCH.



2. ÉLABORATION LA PARTIE **V** PAR MANDATAIRE



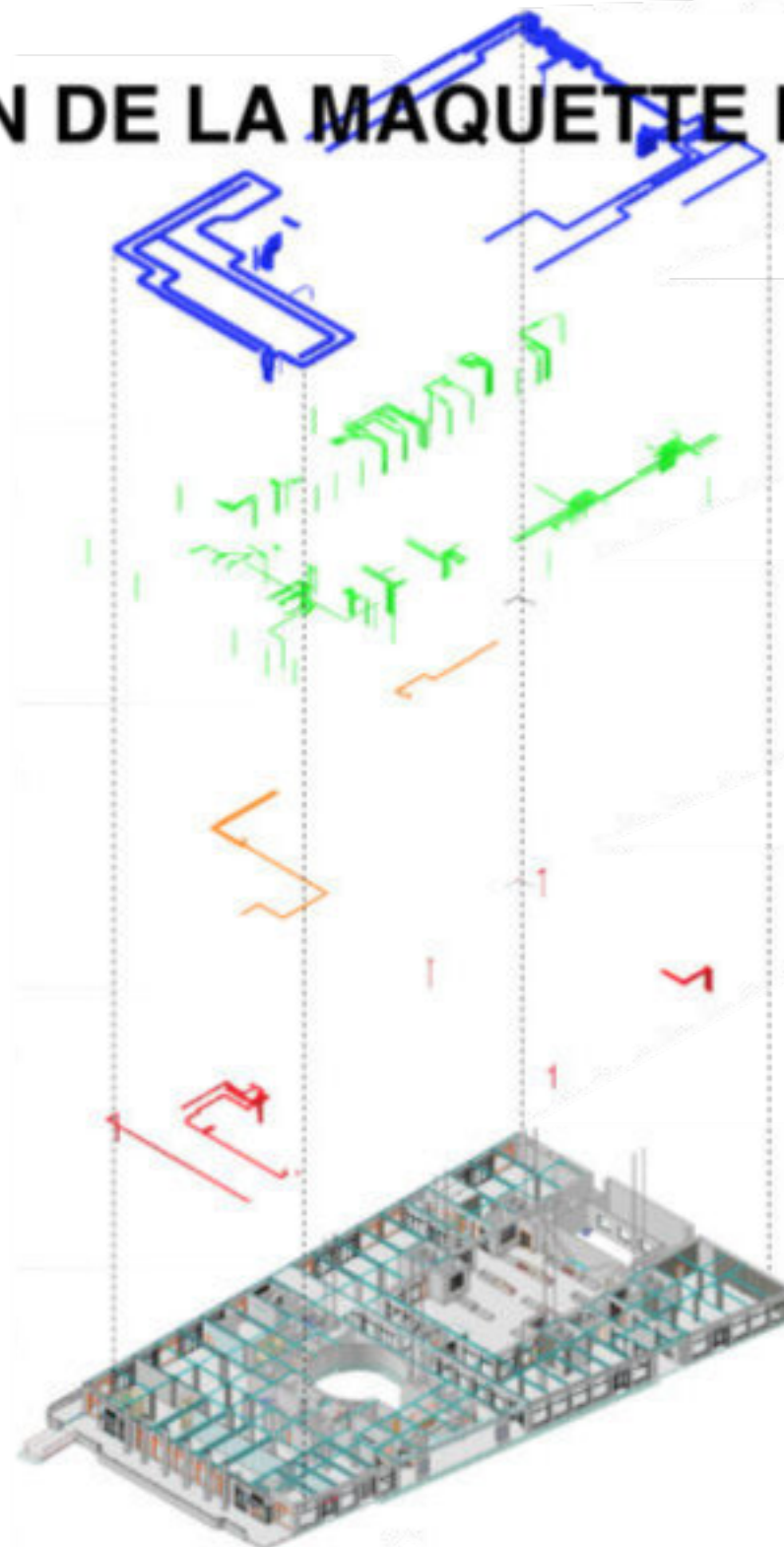
3. COMPILATION DE LA MAQUETTE P/ ARCHITECT

ventilation

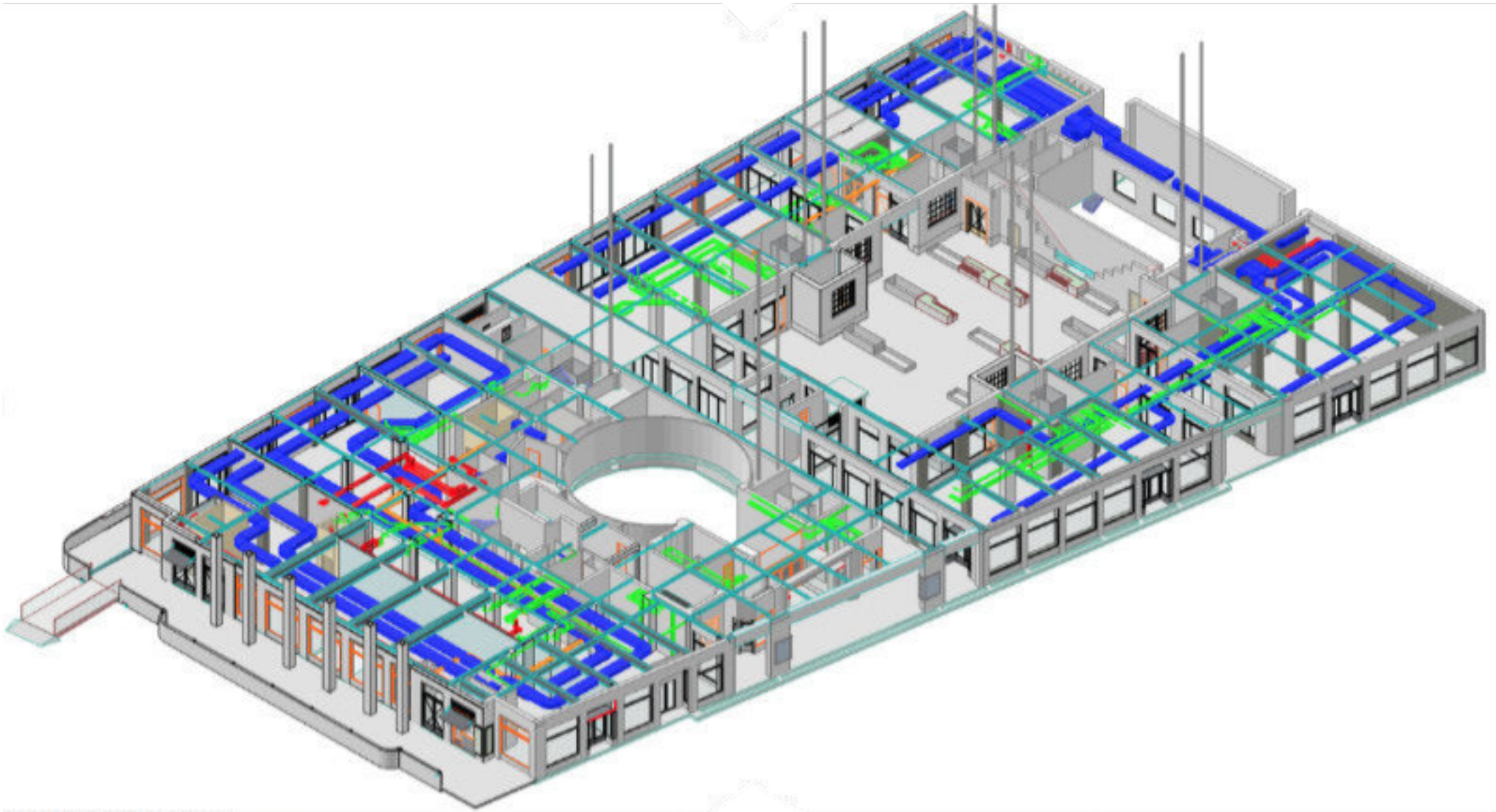
sanitaire

électricité

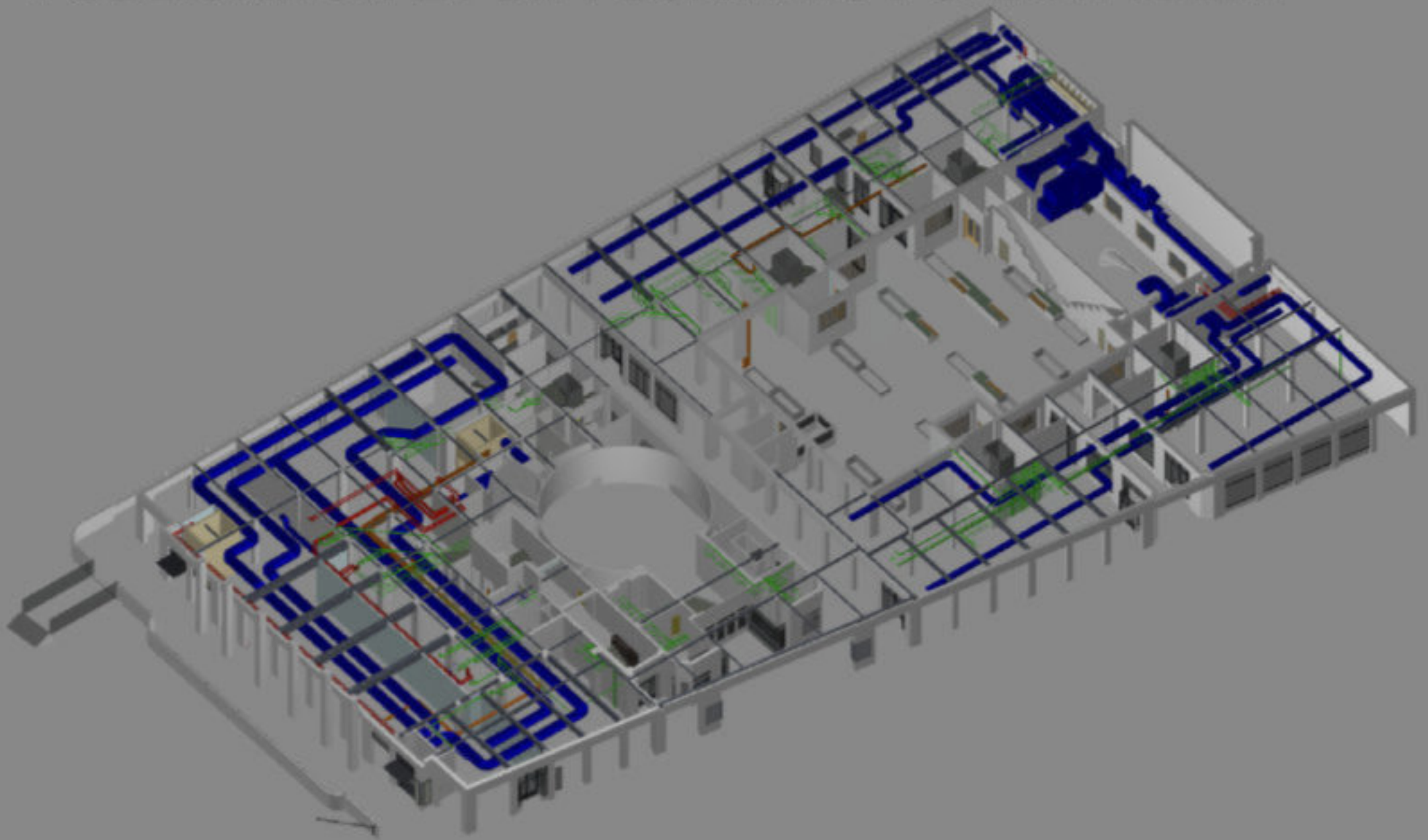
chauffage



3. COMPILATION DE LA MAQUETTE P/ ARCHITECT

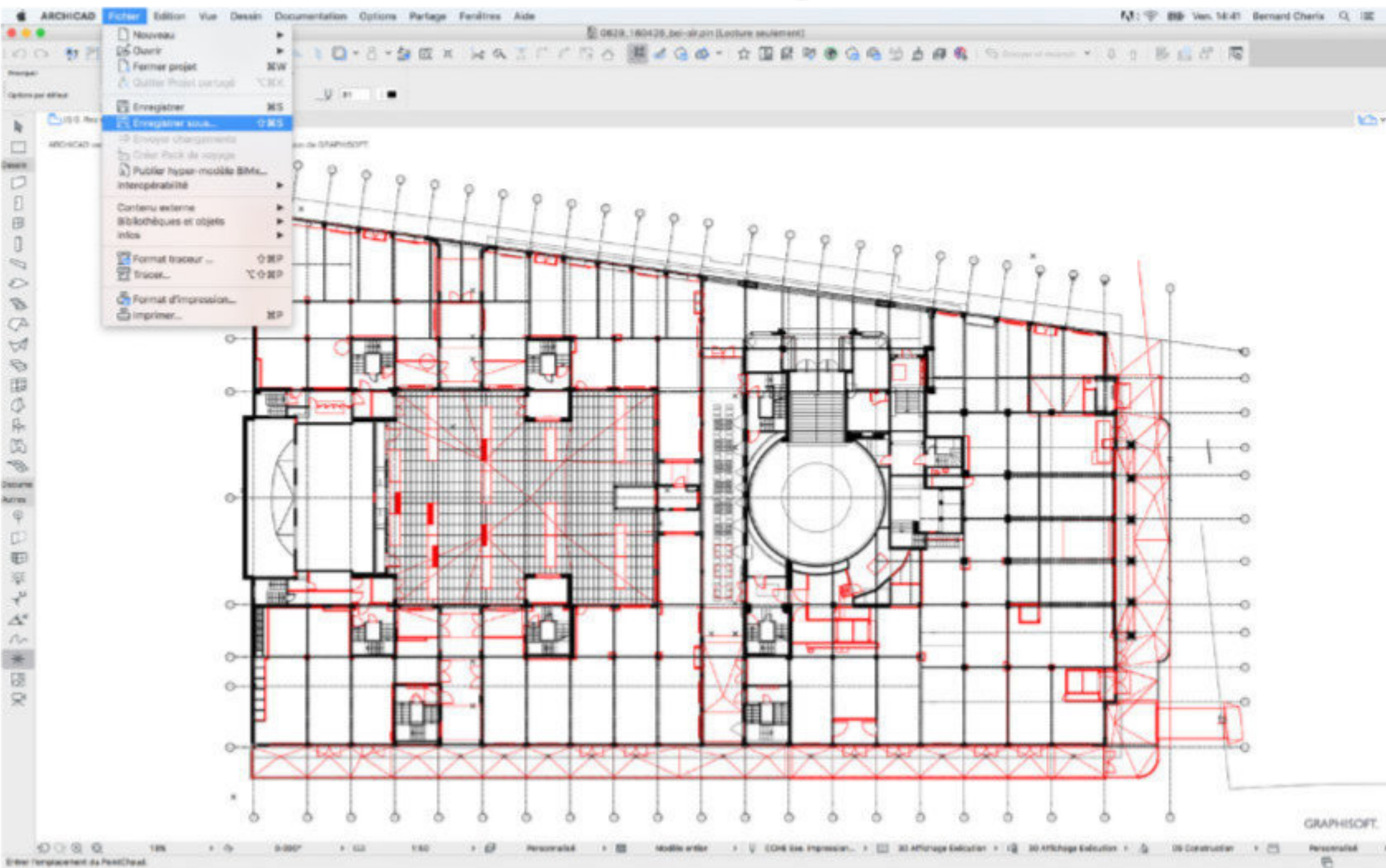


PUBLICATION ET DIFFUSION AU FORMAT .BIMx

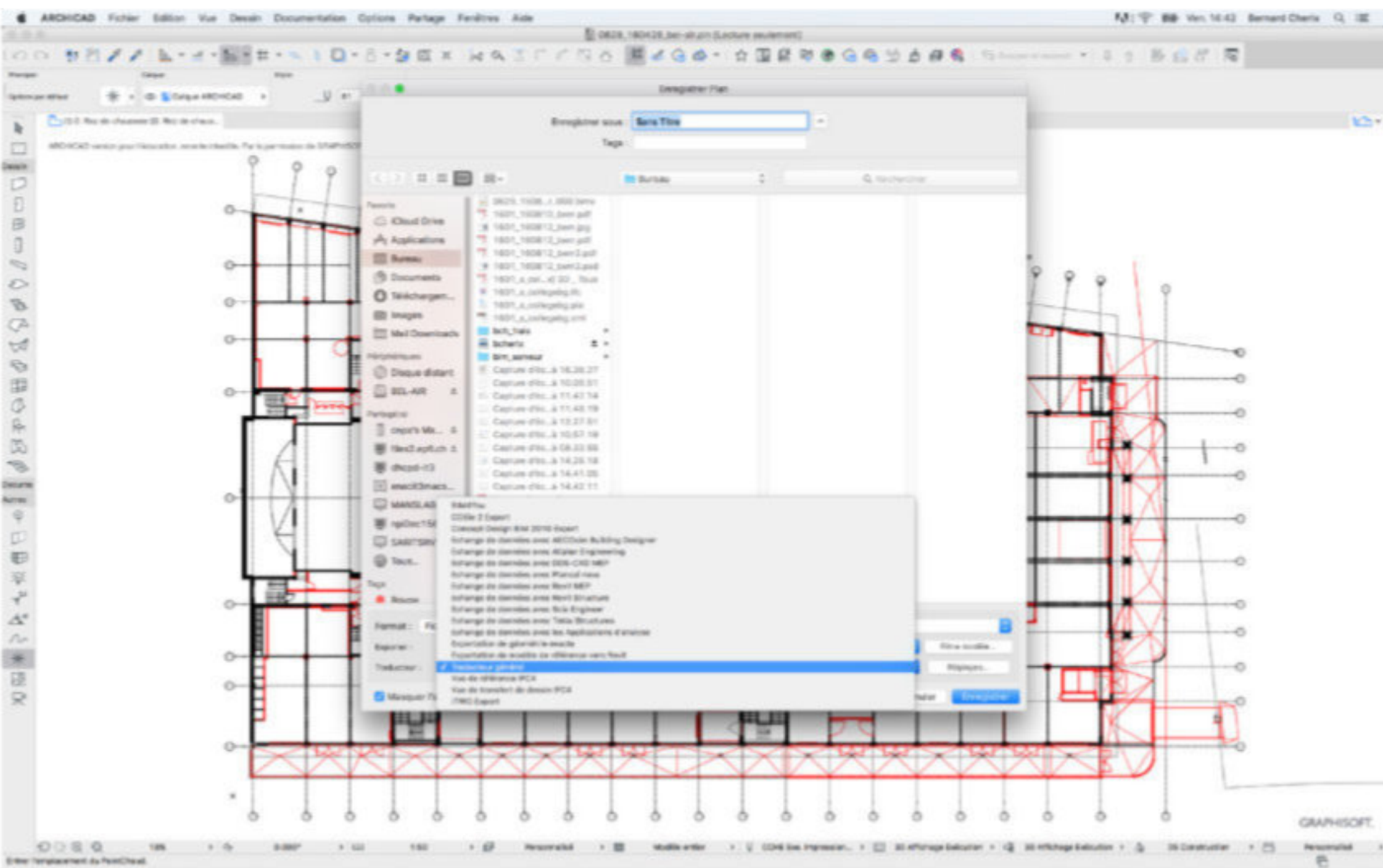


6. PROCESSUS D'EXPORTATION & IMPORTATION

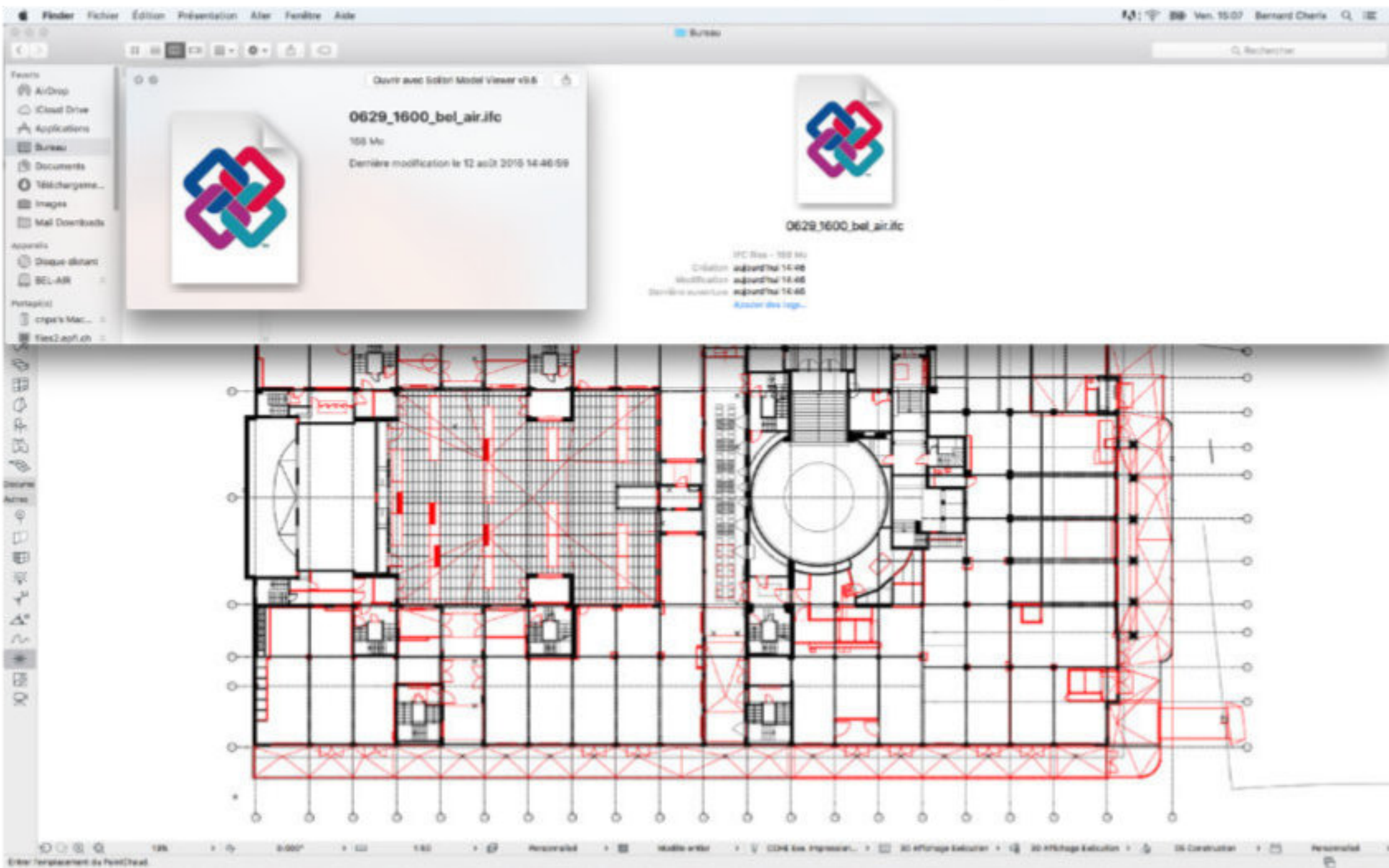
EXPORT DE MAQUETTE : enregistrer comme IFC



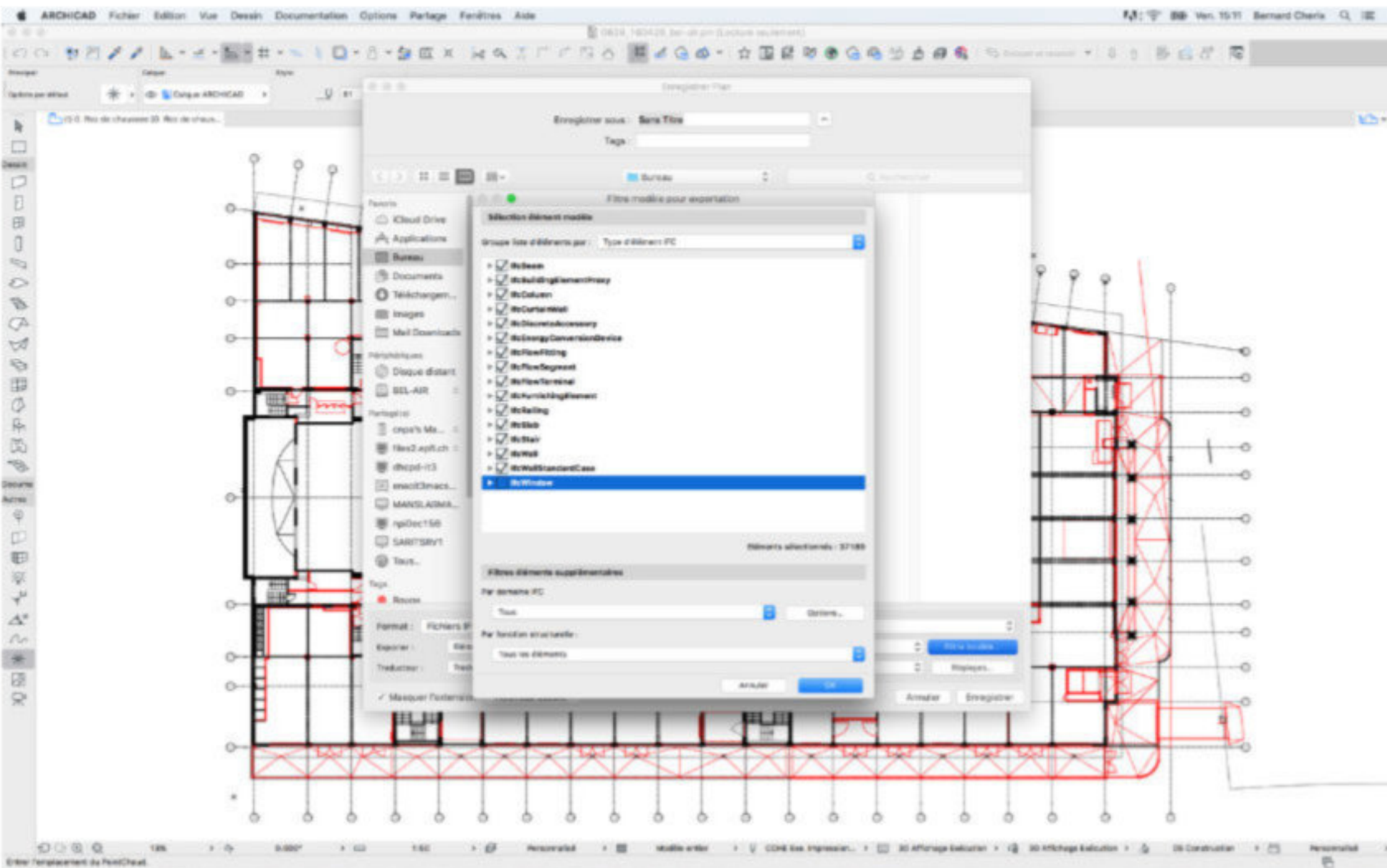
EXPORT DE MAQUETTE : traducteurs IFC



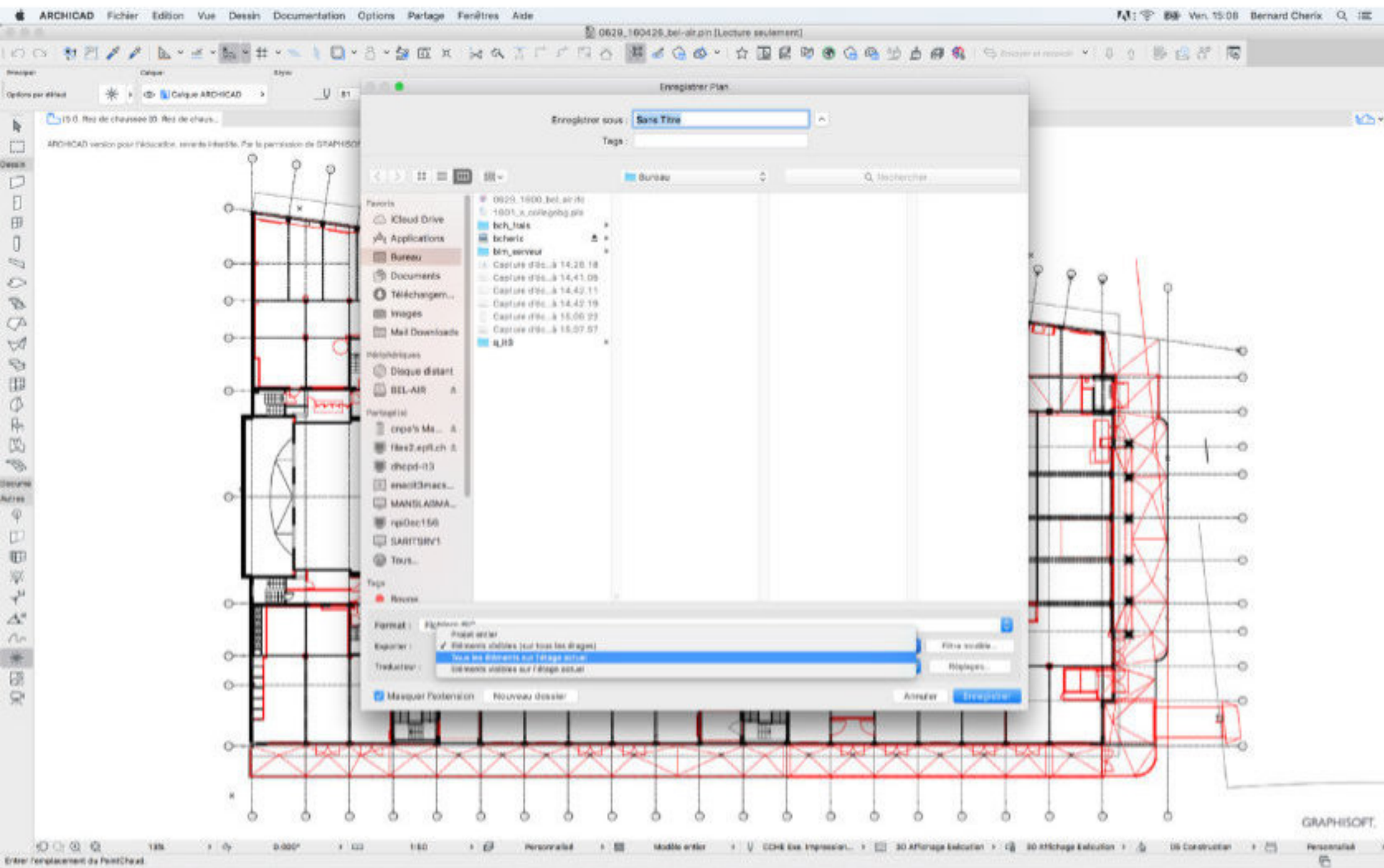
TAILLE LIMITE RENCONTRÉE (selon logiciels)



OPTION DE RÉDUCTION DE TAILLE DU FICHIER 1

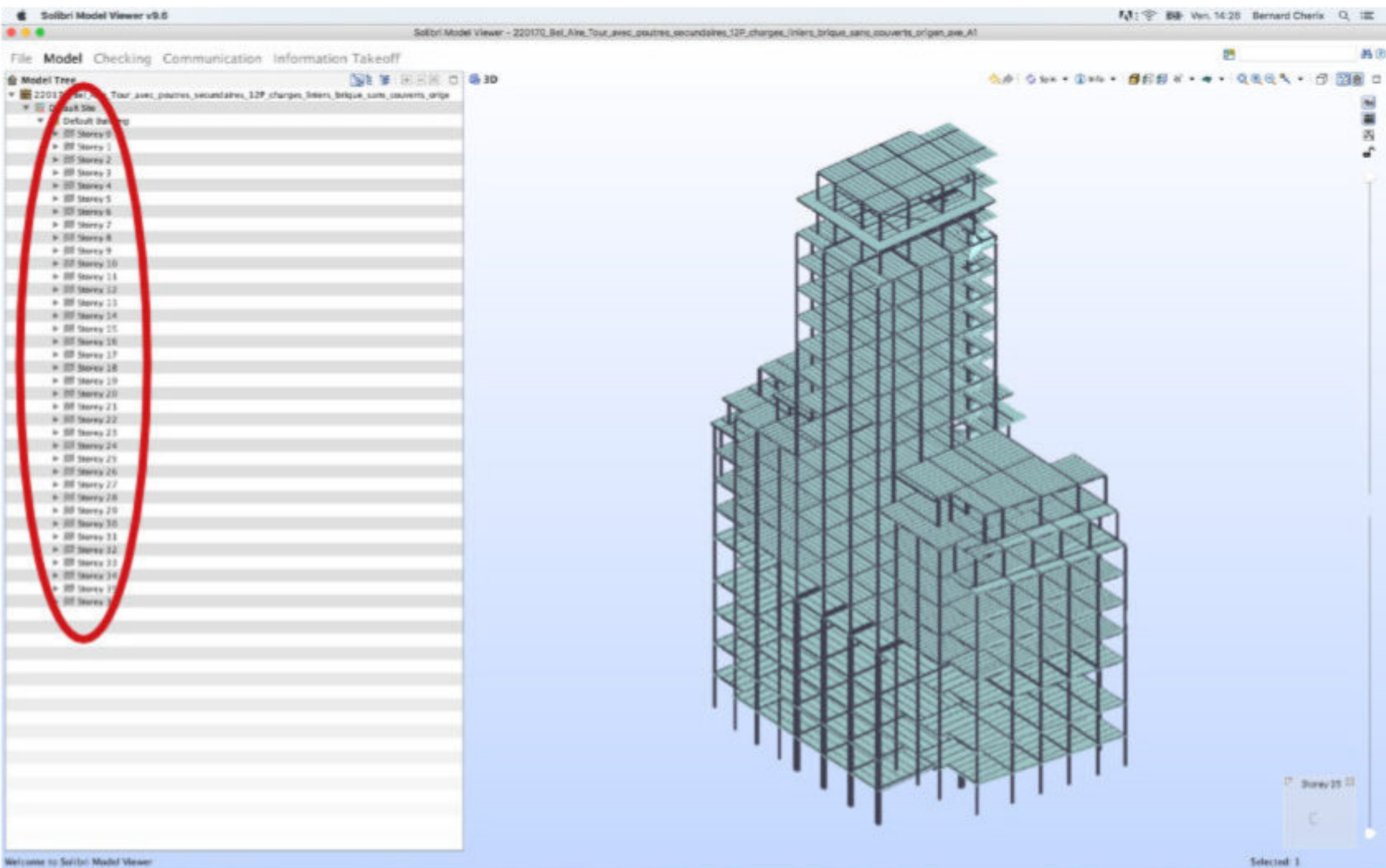


OPTION DE RÉDUCTION DE TAILLE DU FICHIER 2

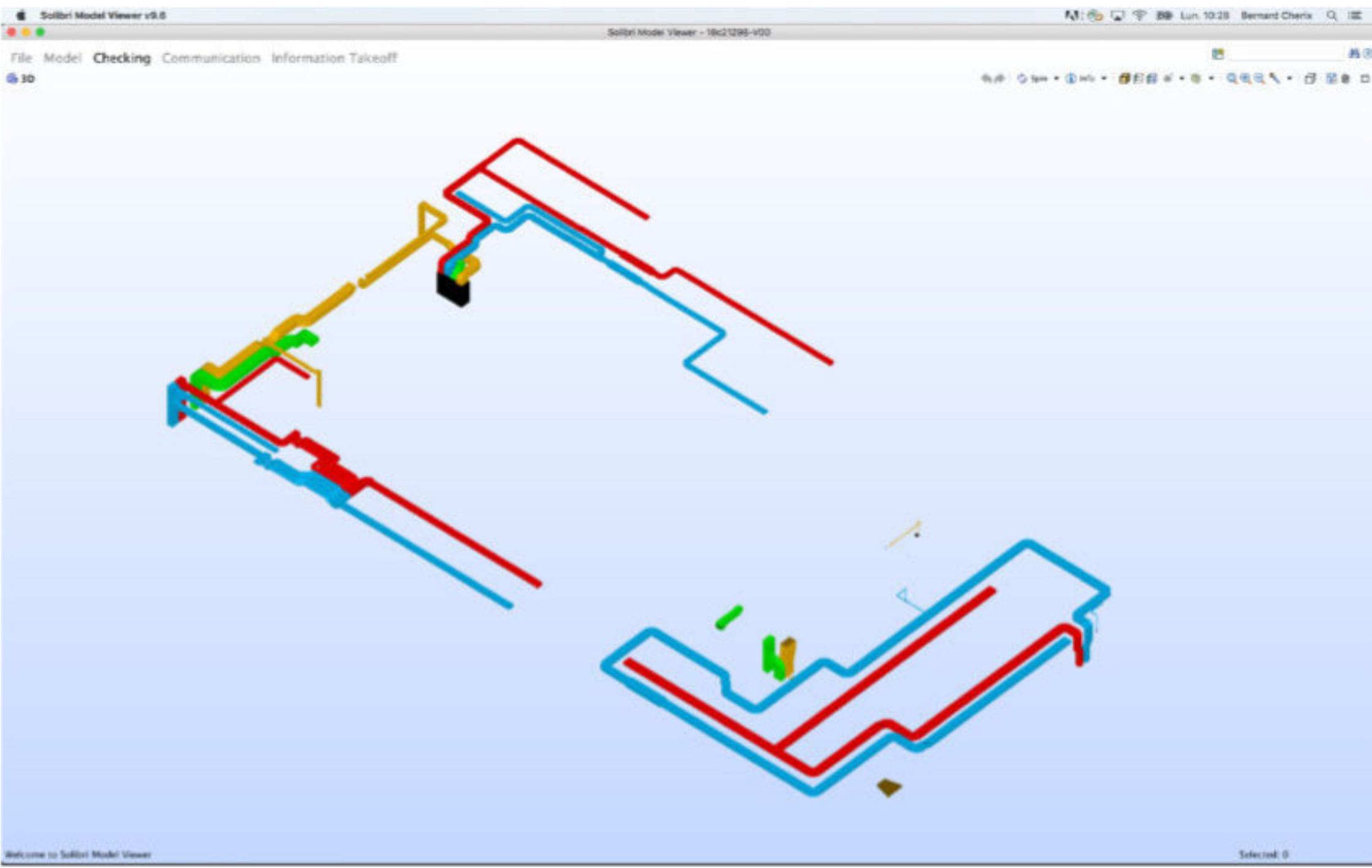


PROCESSUS D'IMPORTATION

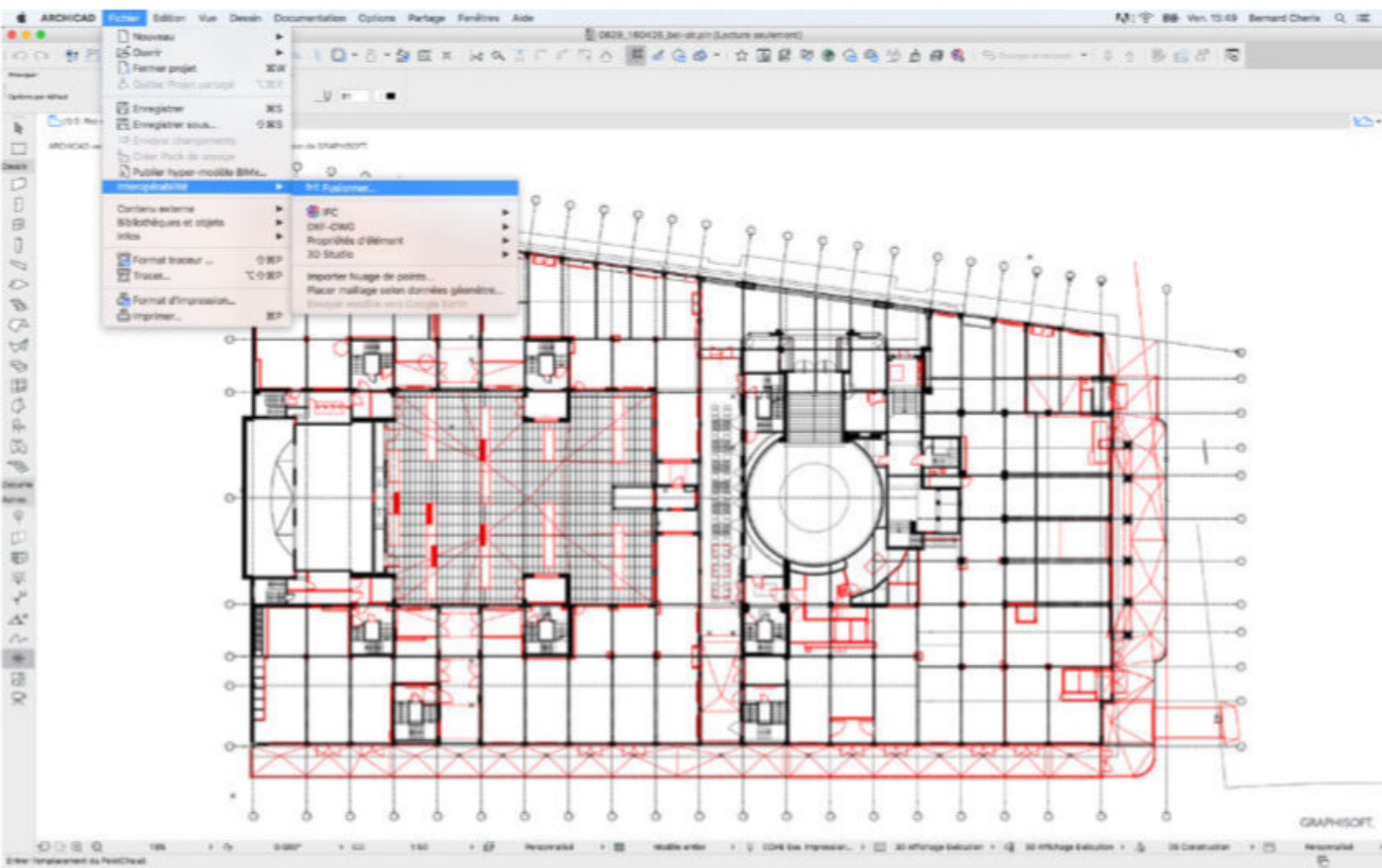
VISUALISATION ET REPÉRAGE D'INCOMPATIBILITÉS



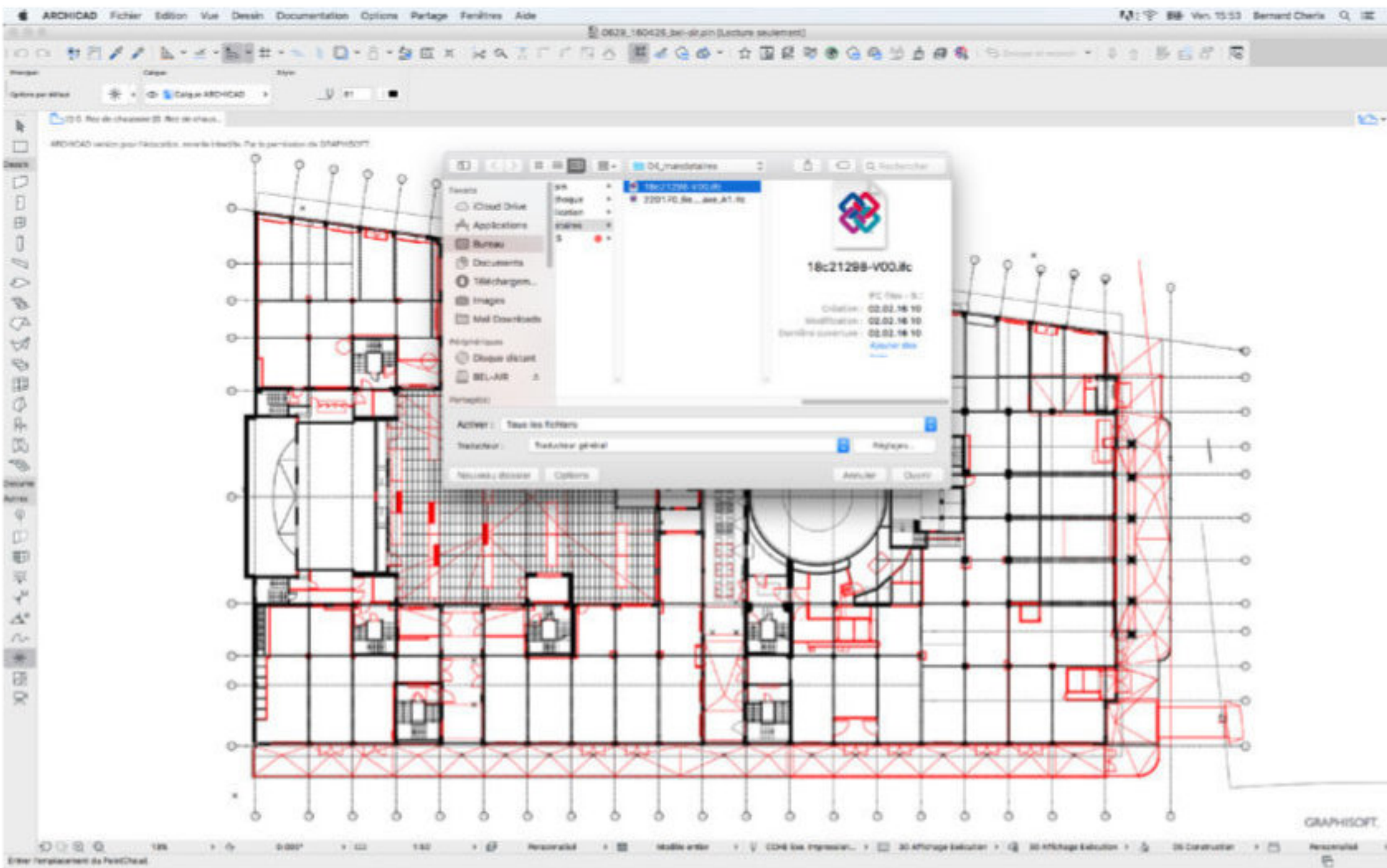
VISUALISATION : modèle cohérent



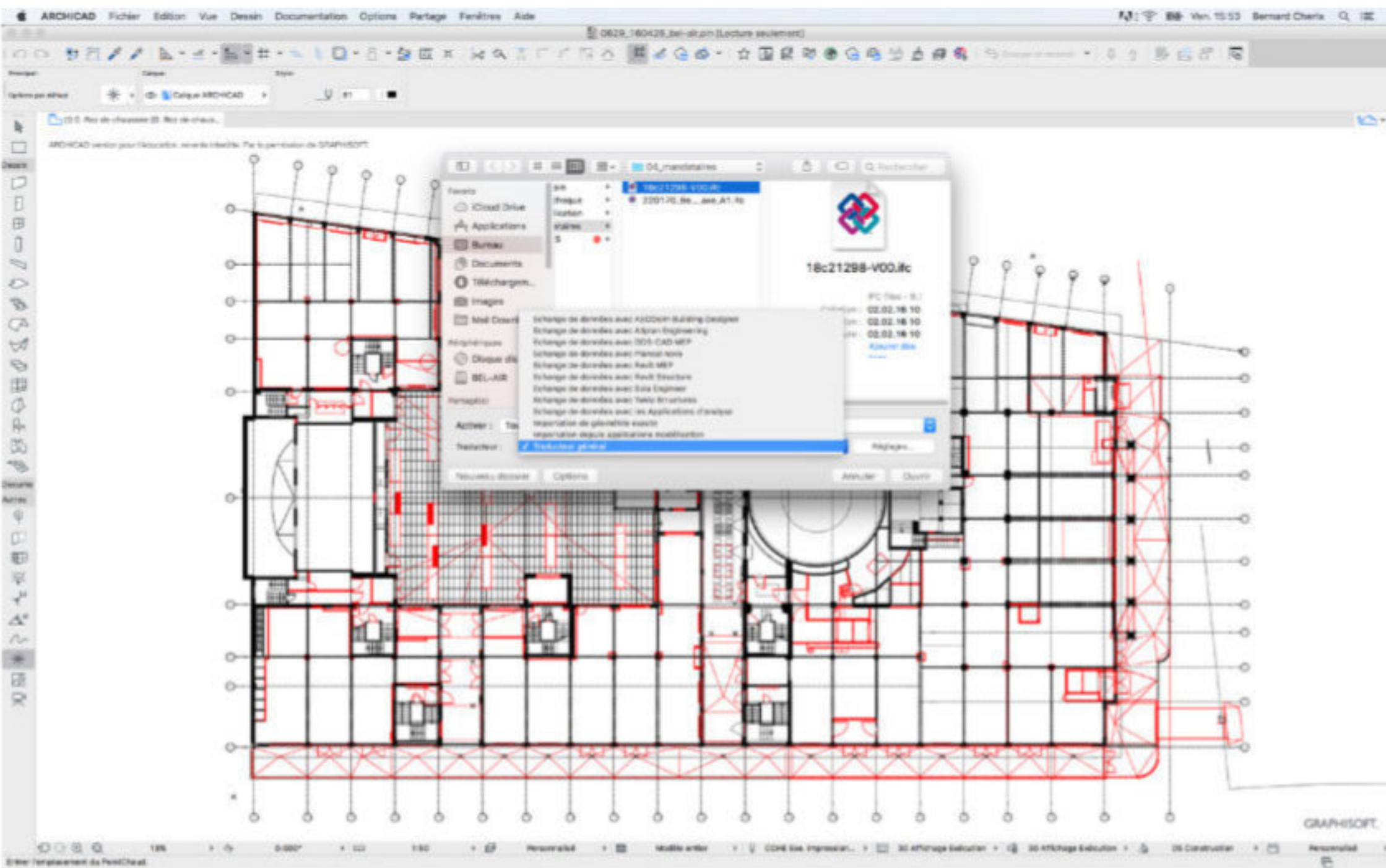
IMPORTATION DE MAQUETTES DE TIERS



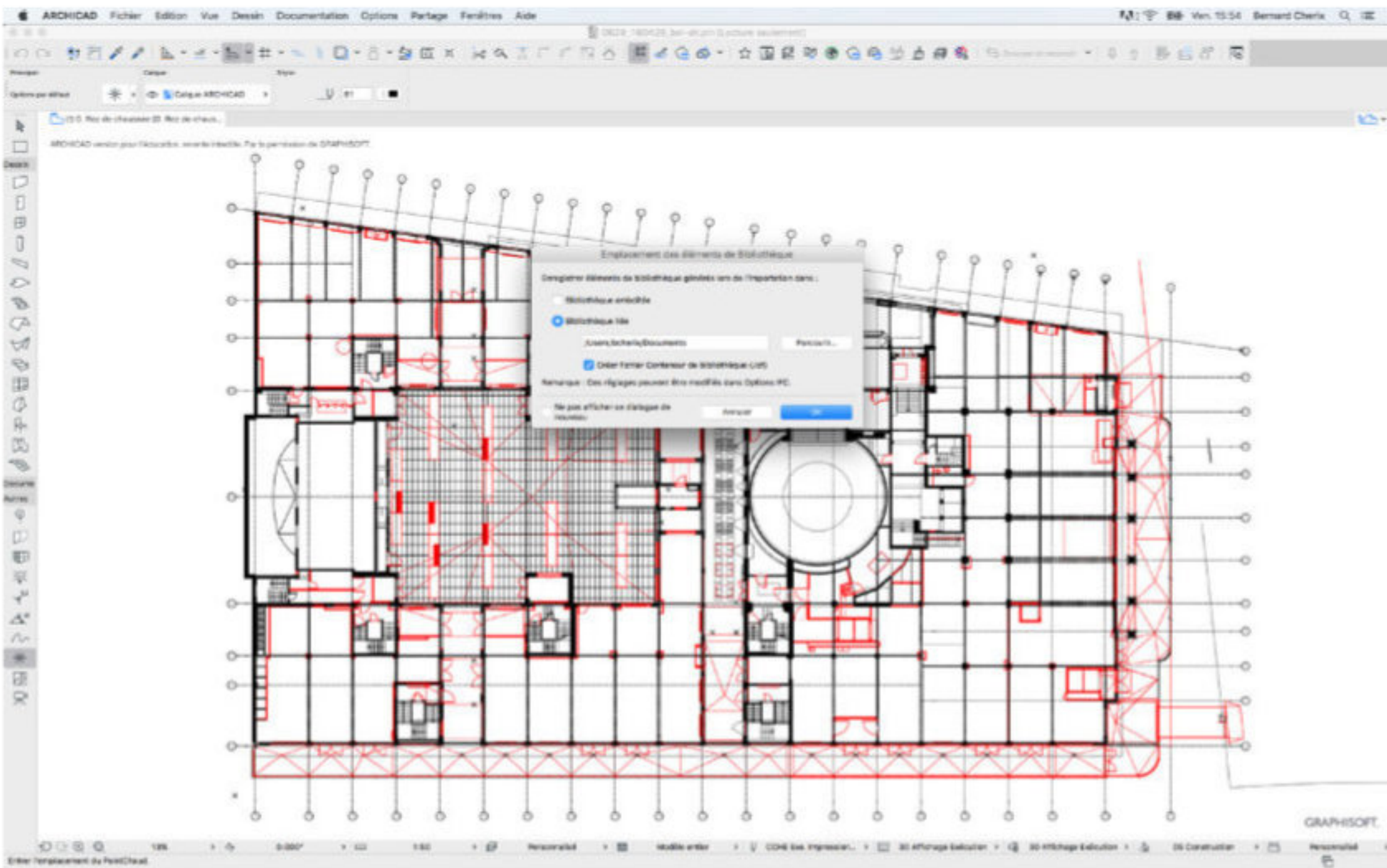
IMPORTATION DE MAQUETTES DE TIERS



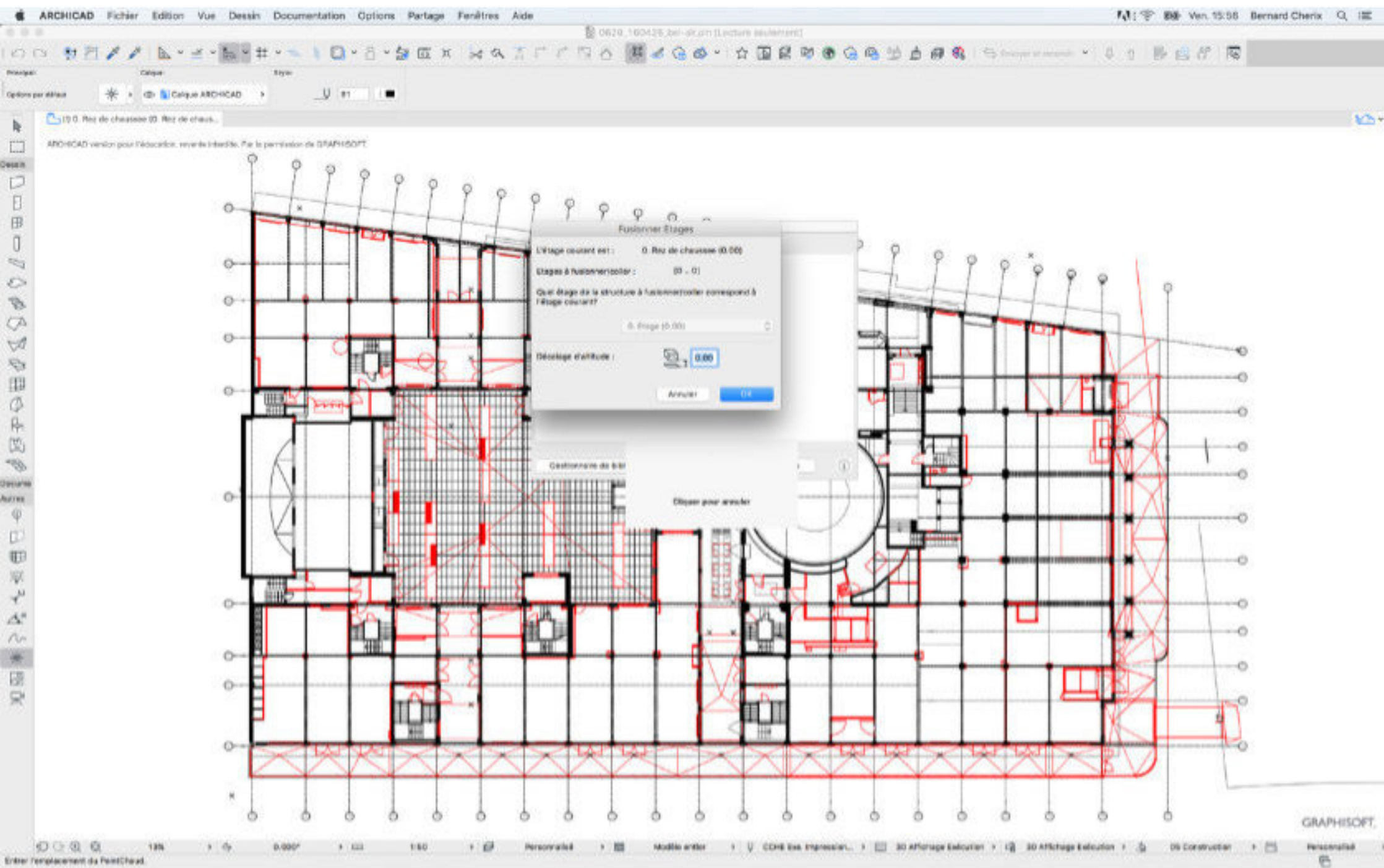
IMPORTATION DE MAQUETTES DE TIERS



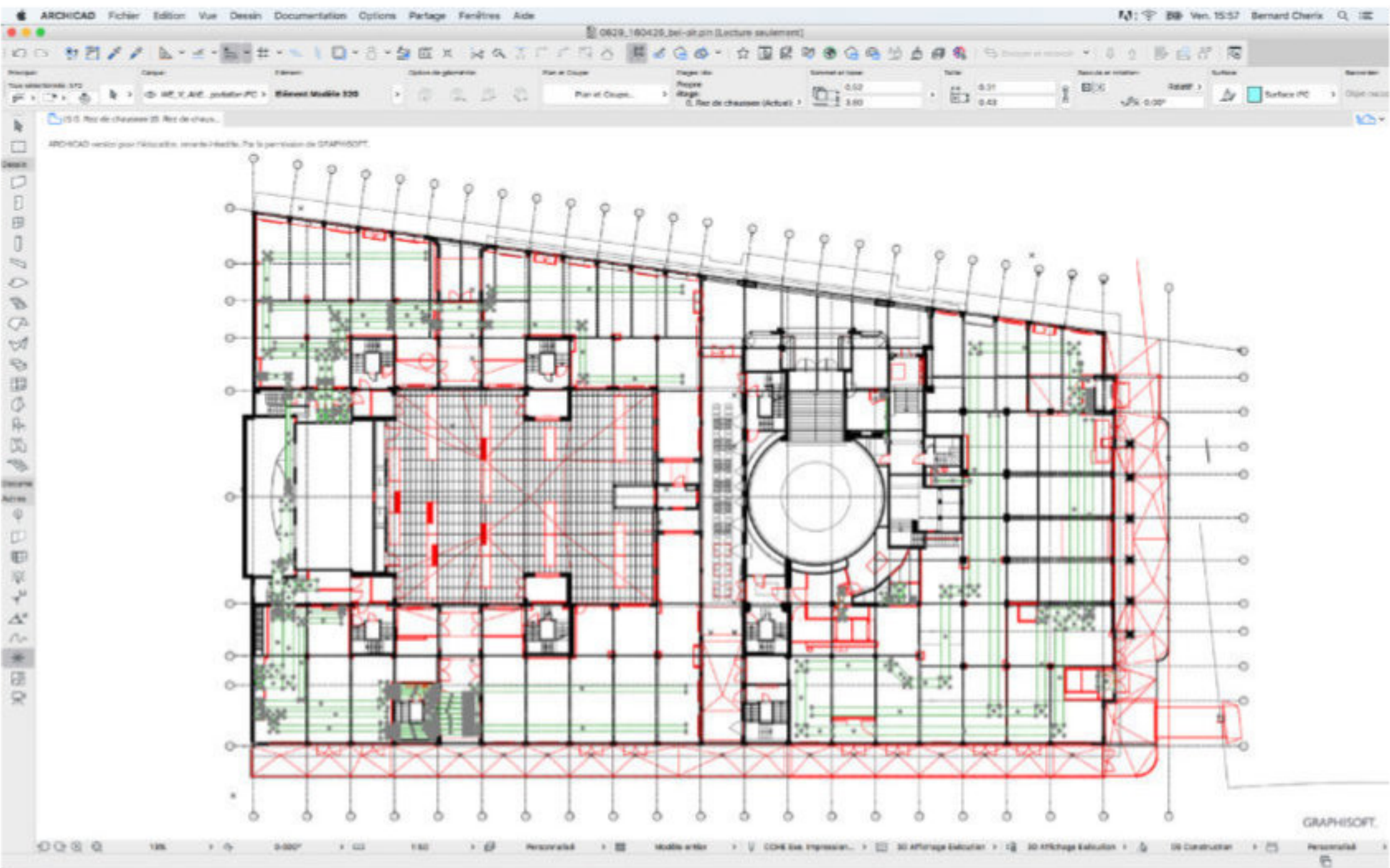
GESTION D'OBJETS DE TIERCES MAQUETTES



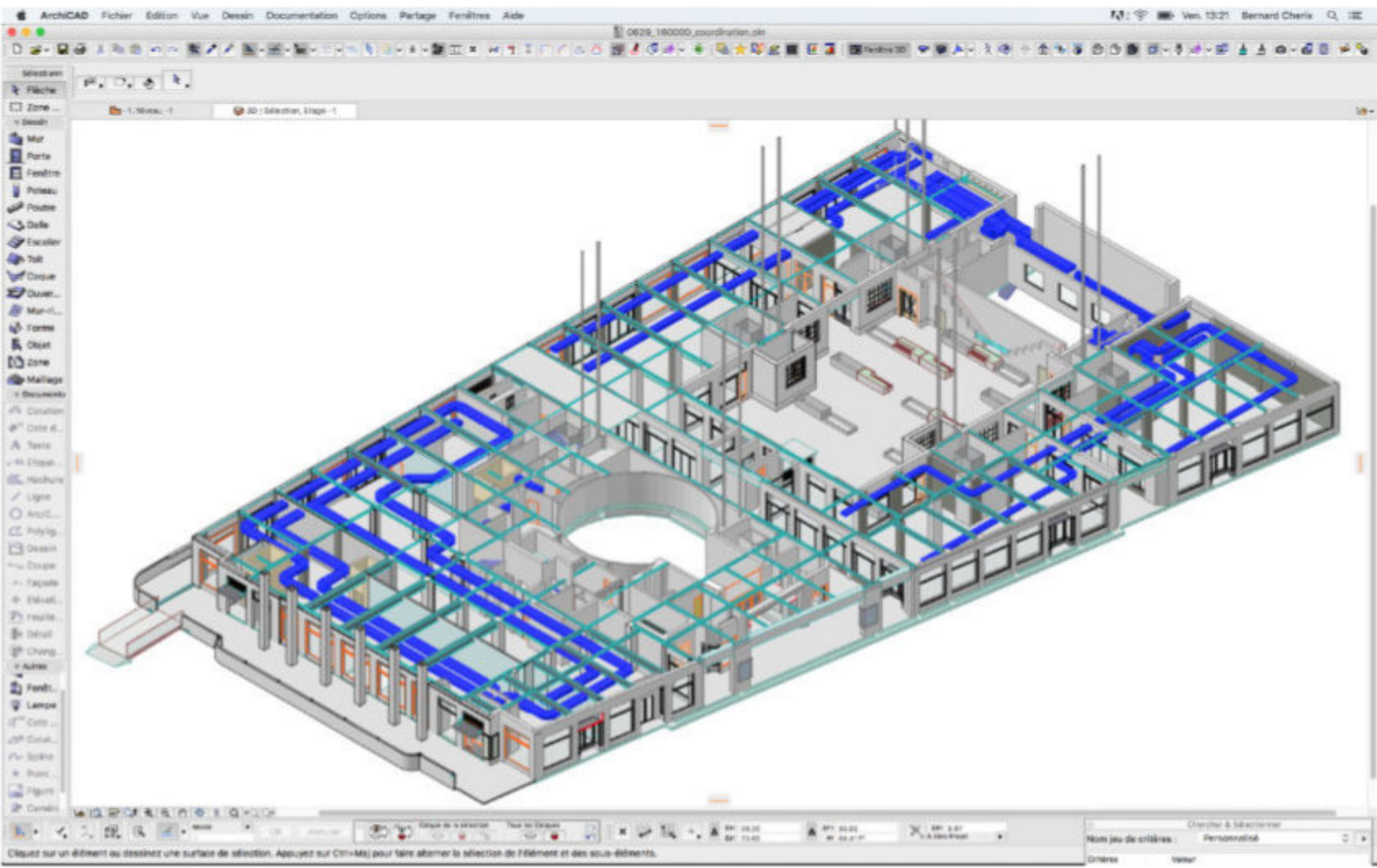
POSITIONNEMENT DE LA MAQUETTE TIERCE EN Z



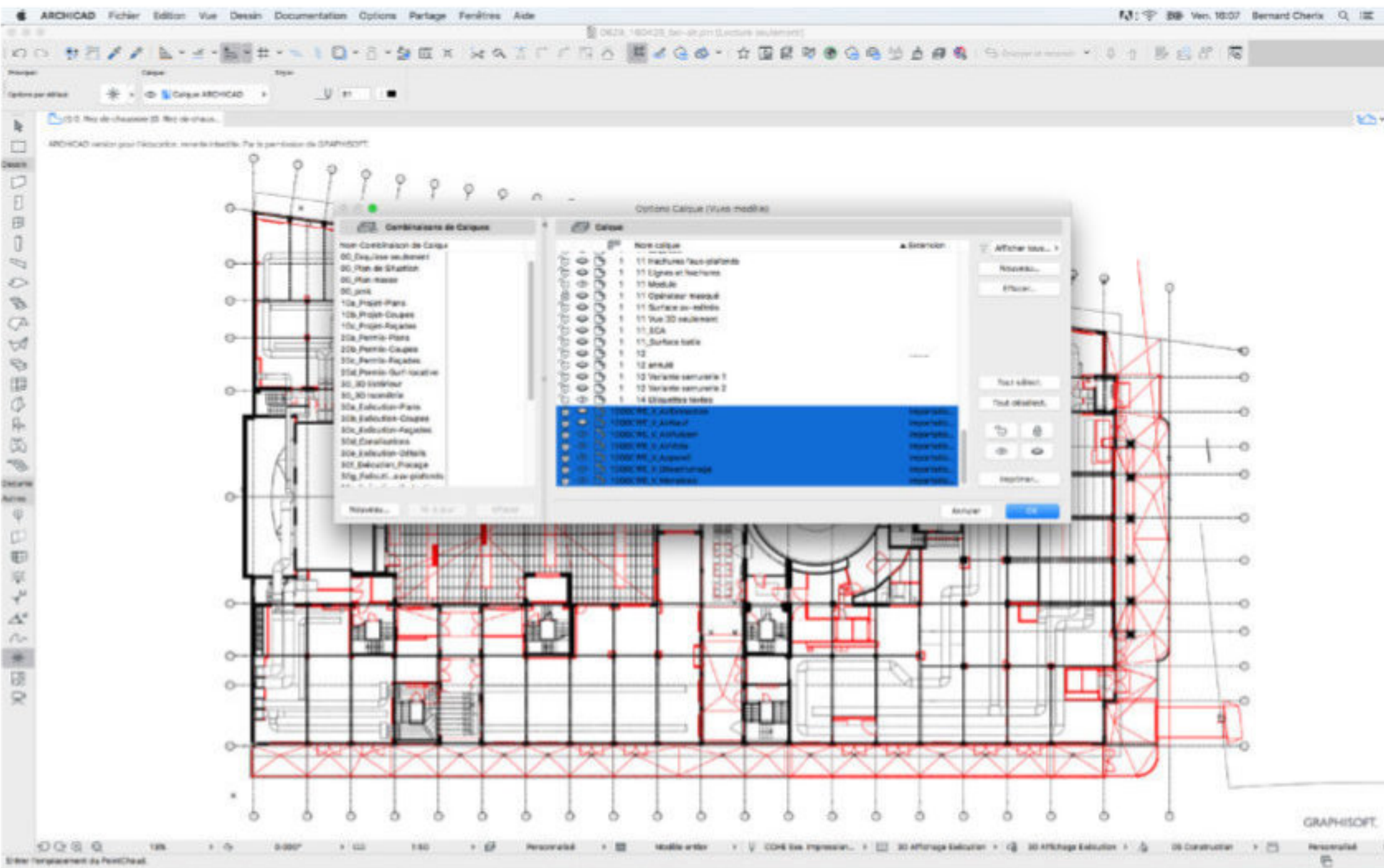
MAQUETTE TIERCE COMPILÉE



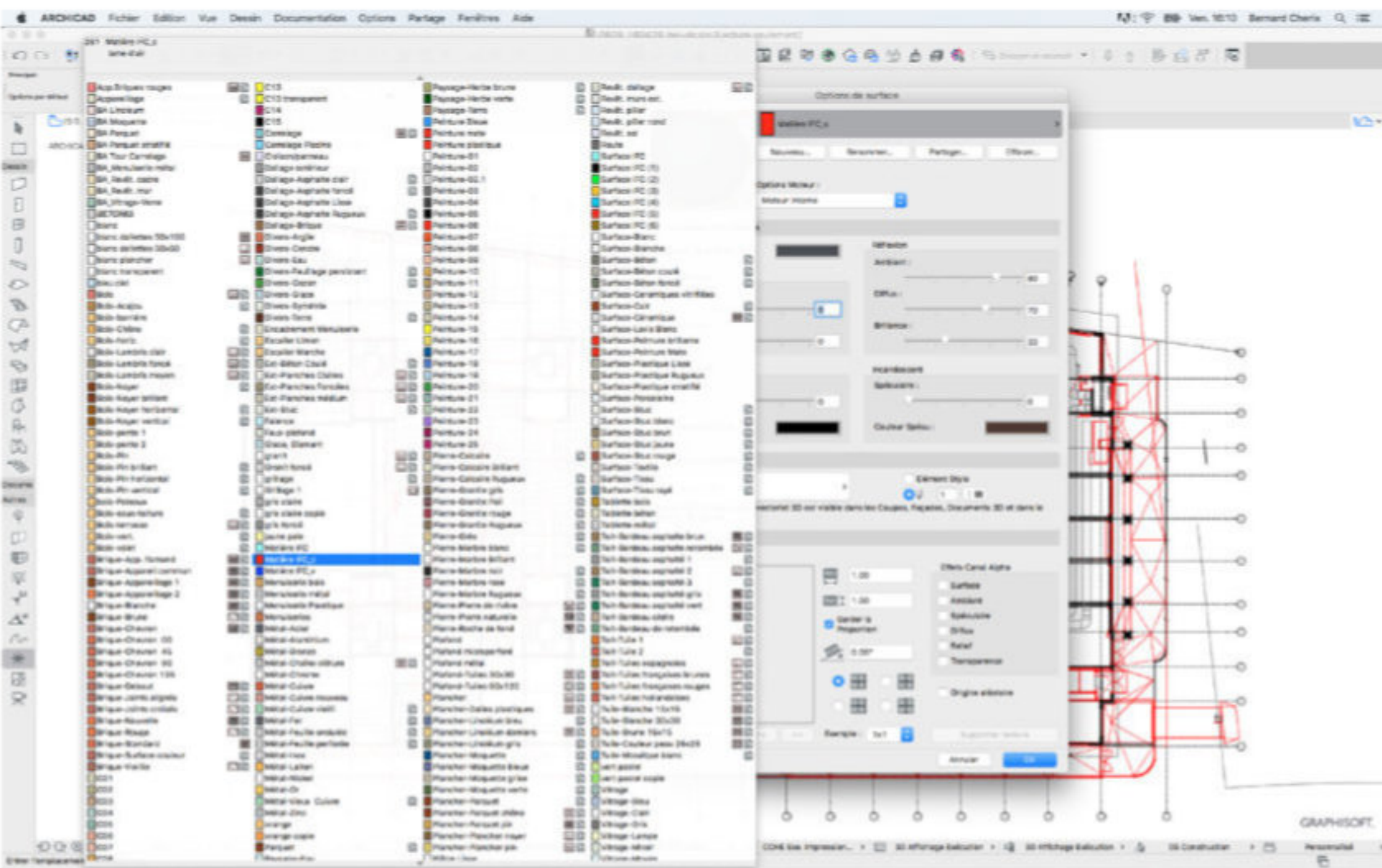
MAQUETTE TIERCE COMPILÉE



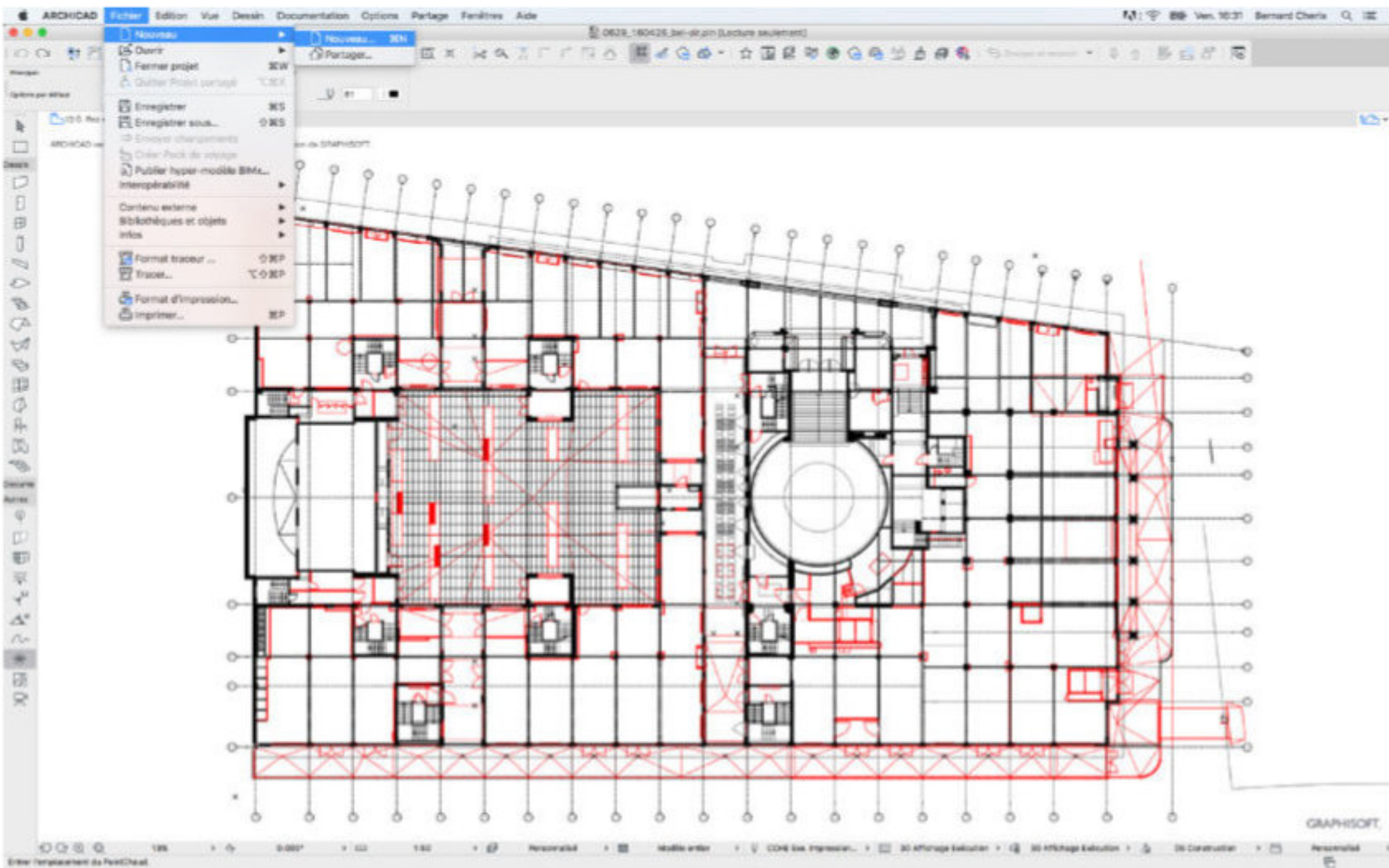
COMPLICATION: ADDITION DE CALQUES TIERS



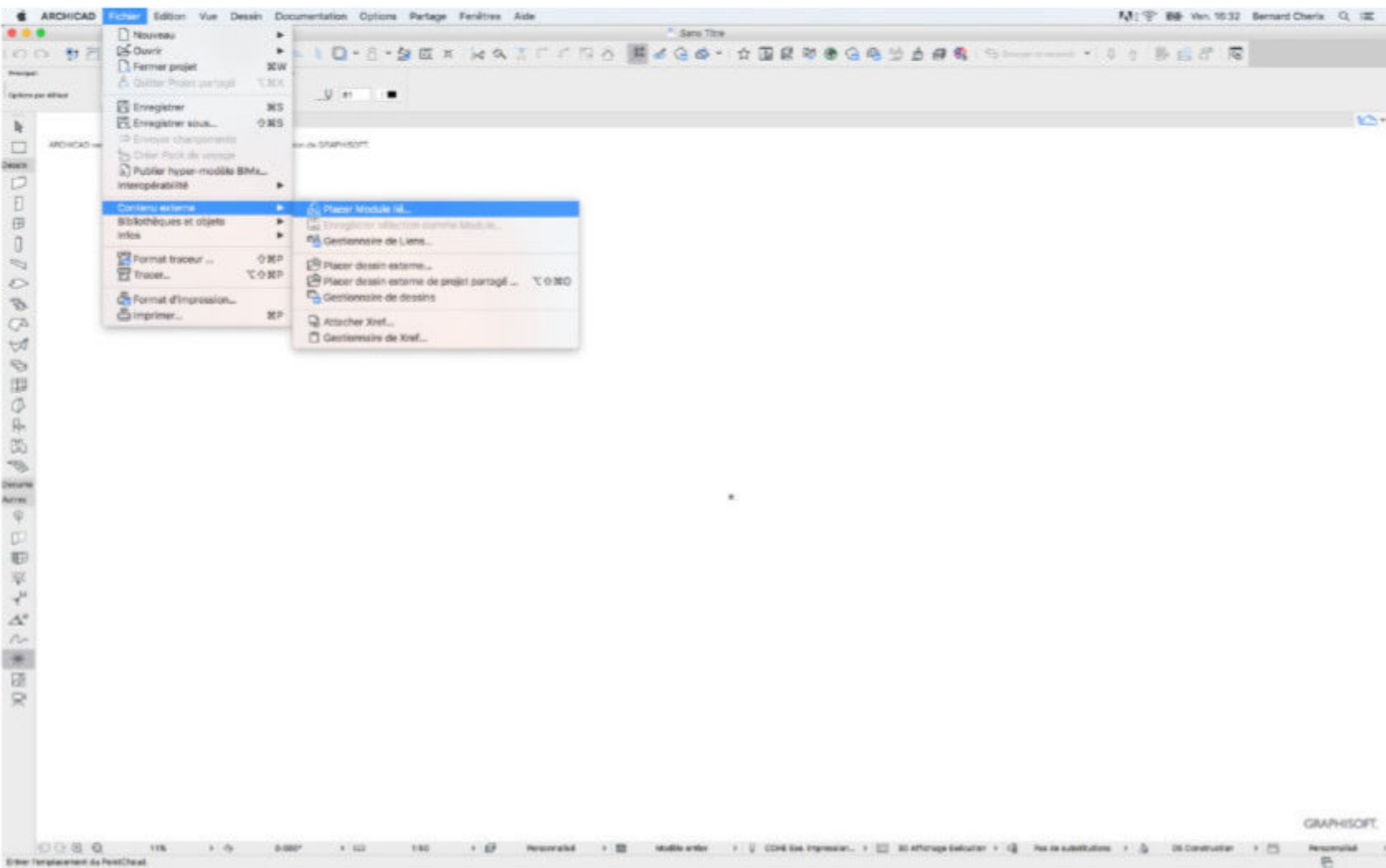
COMPLICATION: ADDITION DE MATÉRIAUX TIERS



ALTERNATIVE P/ GESTION DES COMPLICATIONS



ALTERNATIVE MODULE (v. cours 03)



7. DÉTECTION DE COLLISION

DÉTECTION DE COLLISION (non exhaustif):

- ARCHICAD (dés v. 21)



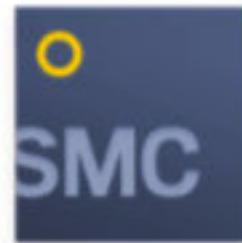
- NAVISWORKS



- TEKLA BIMsight



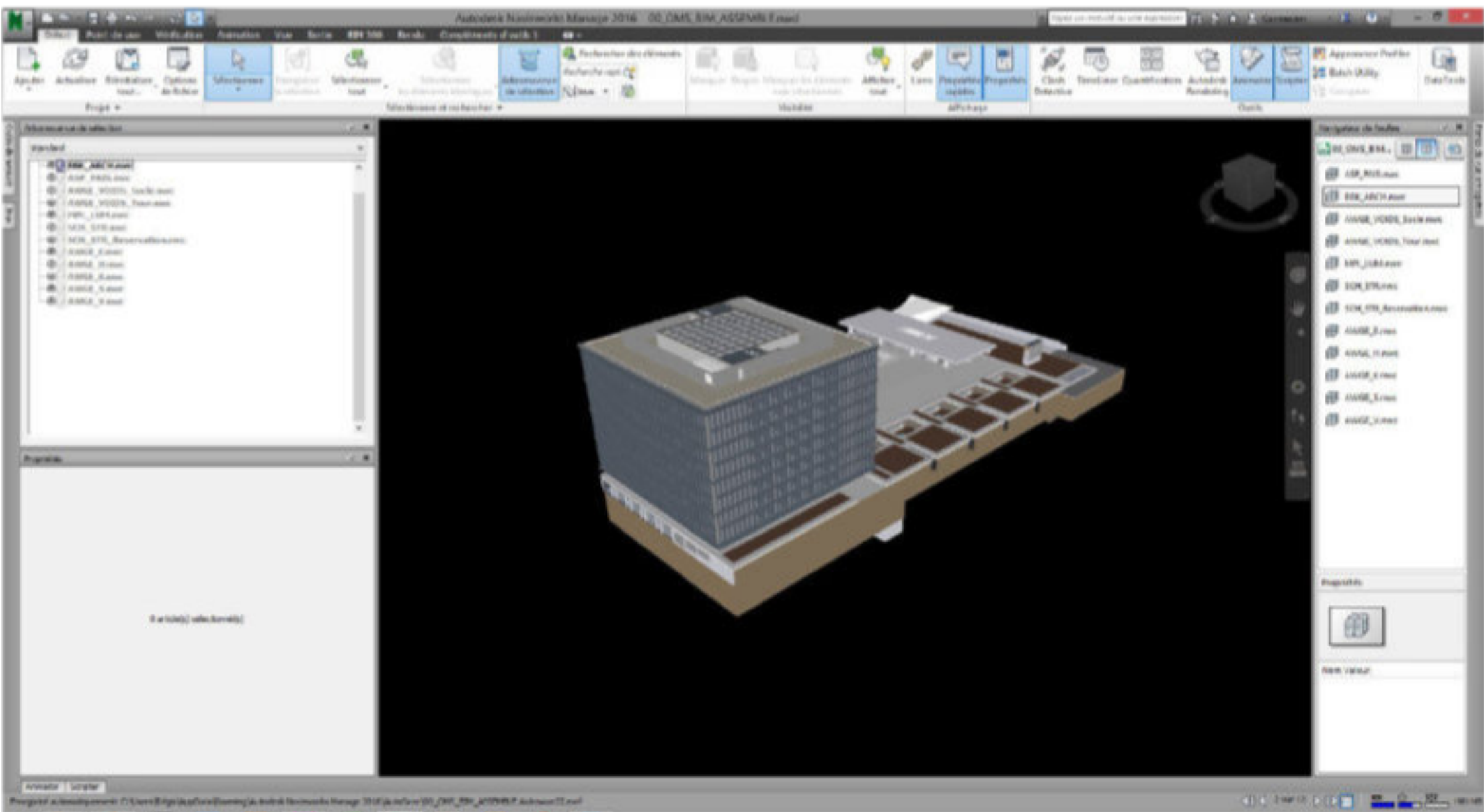
- SOLIBRI MODEL CHECKER



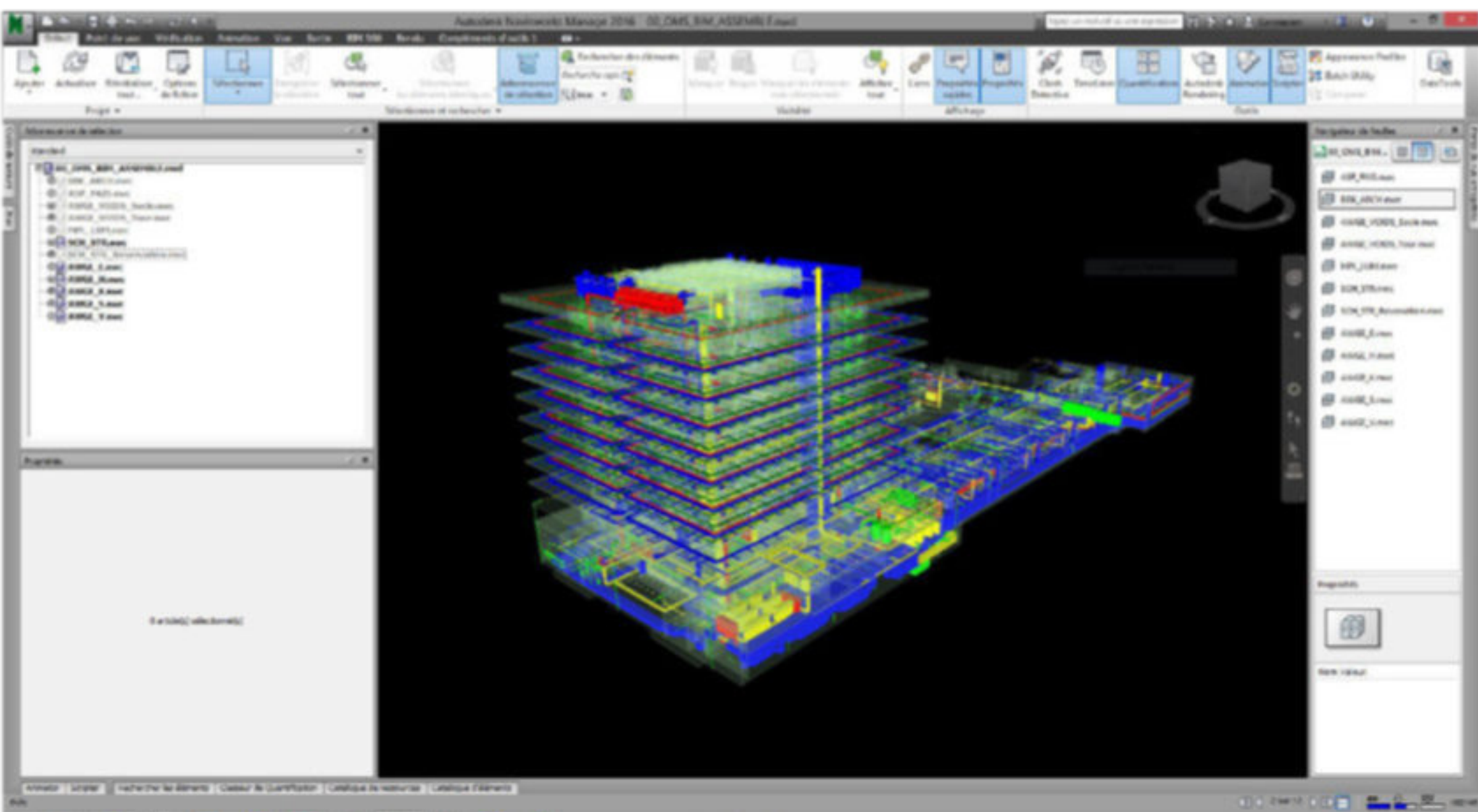
NAVISWORKS -manage- Autodesk



CONTRÔLE VISUEL -Navisworks Freedom-



COMPILATION DES MAQUETTES



DÉTECTION DE COLLISION

The screenshot displays the Autodesk Navisworks Manage 2016 interface. The main 3D view shows a building model with a green translucent volume and a red vertical line indicating a collision. The left pane contains a table of collision data, and the right pane shows a project browser.

Table 1: Collision Data (Left Pane)

Nom	Etat	Date	Approuvé	Approuvé	Description
Corf01	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf02	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf03	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf04	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf05	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf06	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf07	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf08	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf09	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf10	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf11	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf12	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf13	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf14	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf15	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf16	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf17	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf18	Nouveau	06.03.24 05-07-2017			Der (intermodul)
Corf19	Nouveau	06.03.24 05-07-2017			Der (intermodul)

Table 2: Project Browser (Right Pane)

Project Browser
01_001_001
01_001_002
01_001_003
01_001_004
01_001_005
01_001_006
01_001_007
01_001_008
01_001_009
01_001_010
01_001_011
01_001_012
01_001_013
01_001_014
01_001_015
01_001_016
01_001_017
01_001_018
01_001_019
01_001_020

DÉTECTION DE COLLISION > .bcf en option...

The screenshot displays the Autodesk Navisworks Manage 2016 interface. The main view shows a 3D model of a building with a green translucent volume and a red vertical line indicating a collision. The interface includes a ribbon, a left pane with a table of elements, and a right pane with a list of elements.

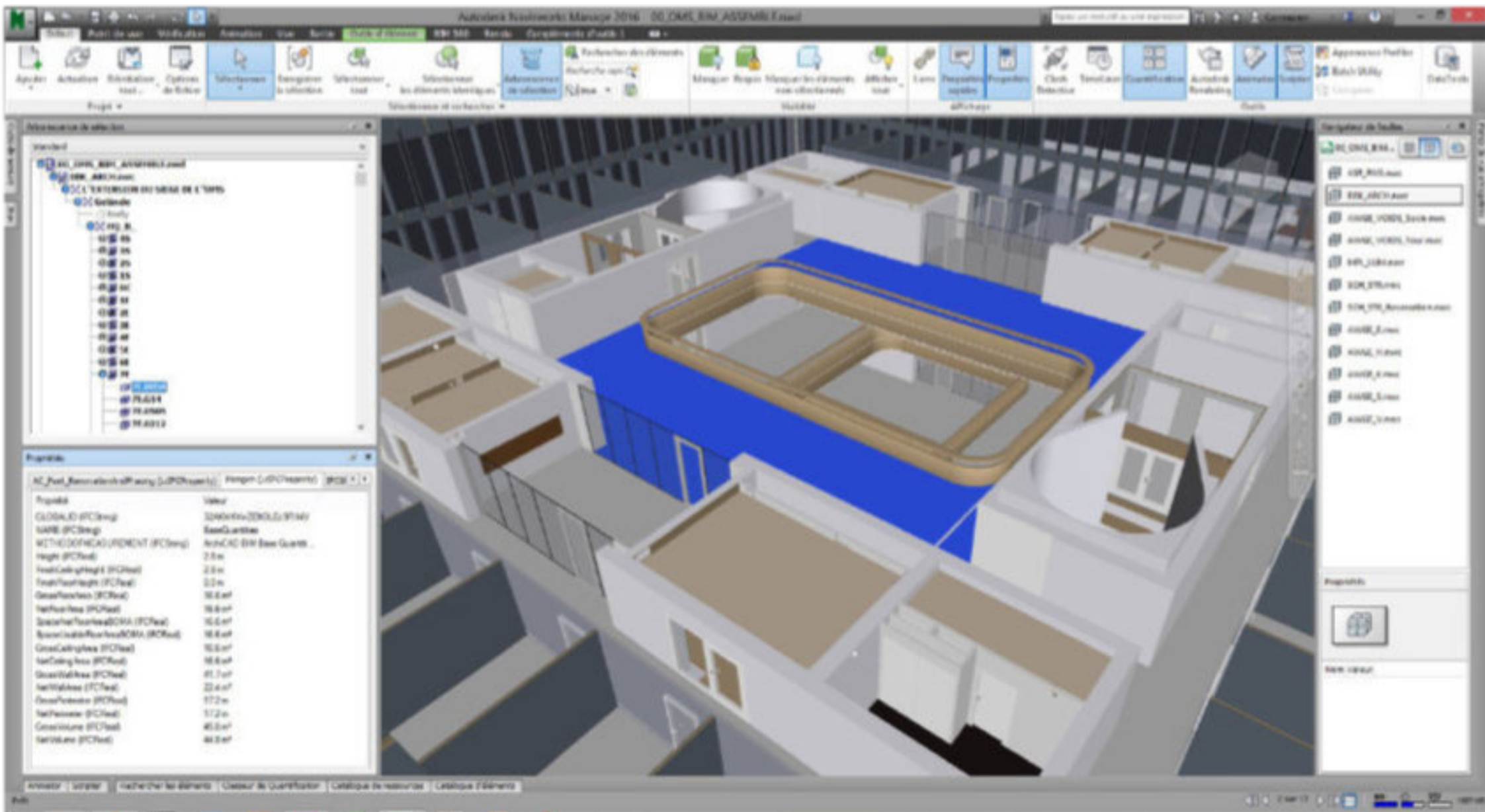
Table 1: Elements in the left pane

Nom	Stat	Cont	Stat	Stat	Stat	Stat	Stat
1000000	Nouveau	1000	1000	1000	1000	1000	1000

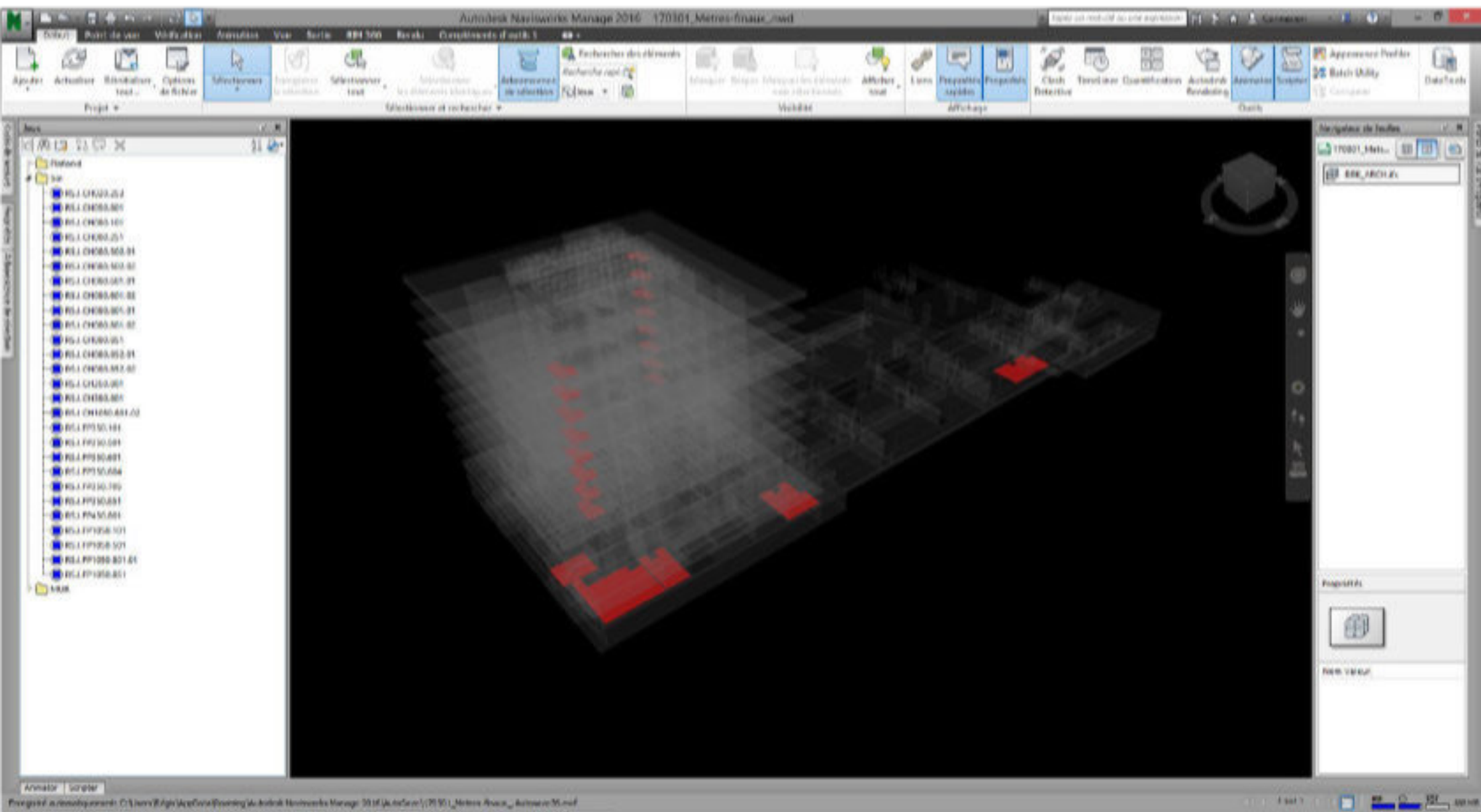
Table 2: Elements in the right pane

Nom	Stat	Stat	Stat	Stat	Stat	Stat	Stat
1000000	Nouveau	1000	1000	1000	1000	1000	1000

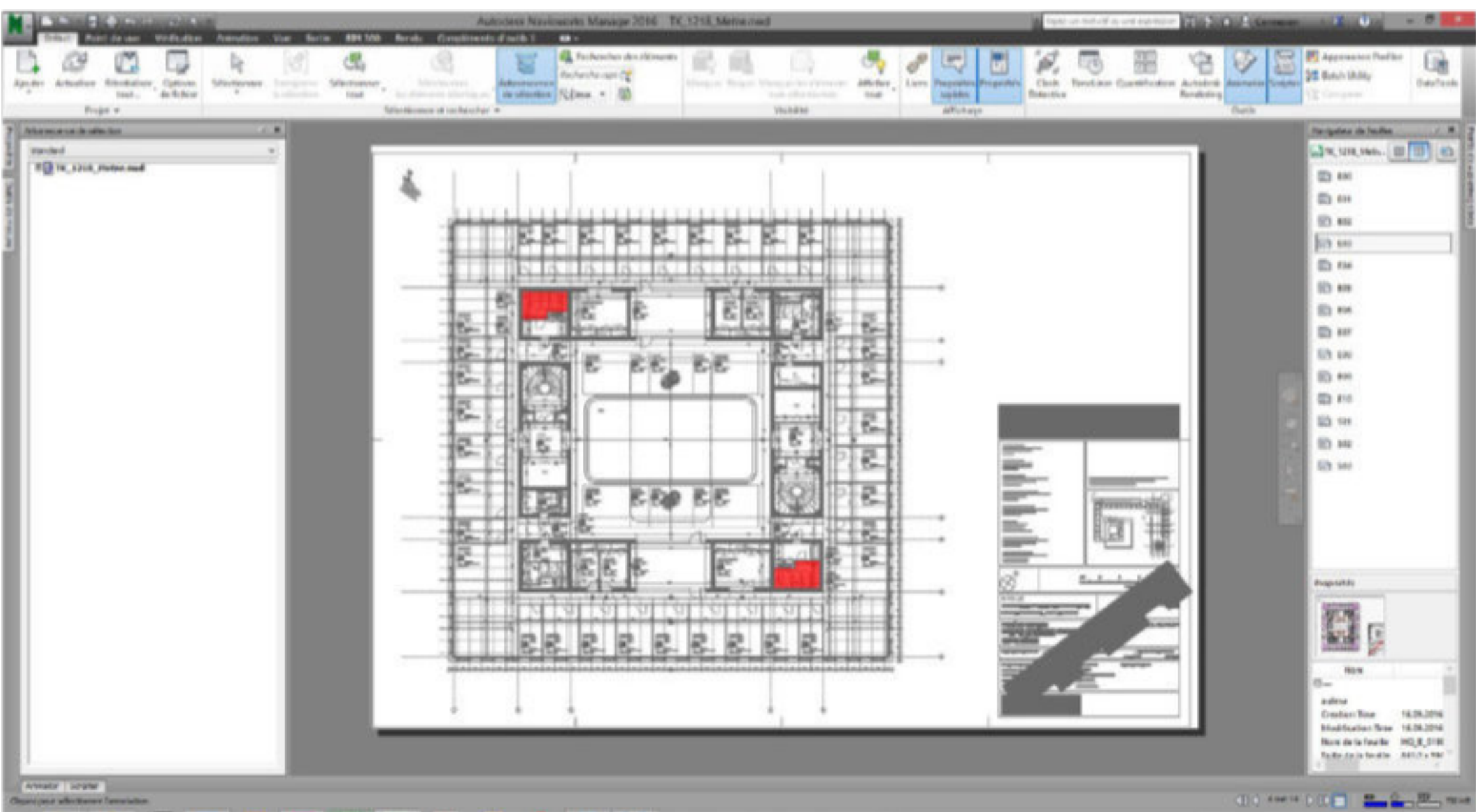
CONTRÔLE DES DONNÉES DE COMPOSANTS



REPÉRAGE DES ÉLÉMENTS DE LA MAQUETTE...



... LIENS AVEC LES PLANS 2D



QUANTIFICATION (MÉTRÉS)

[illegible]

EXPORT / IMPORT DE BASE DE DONNÉES

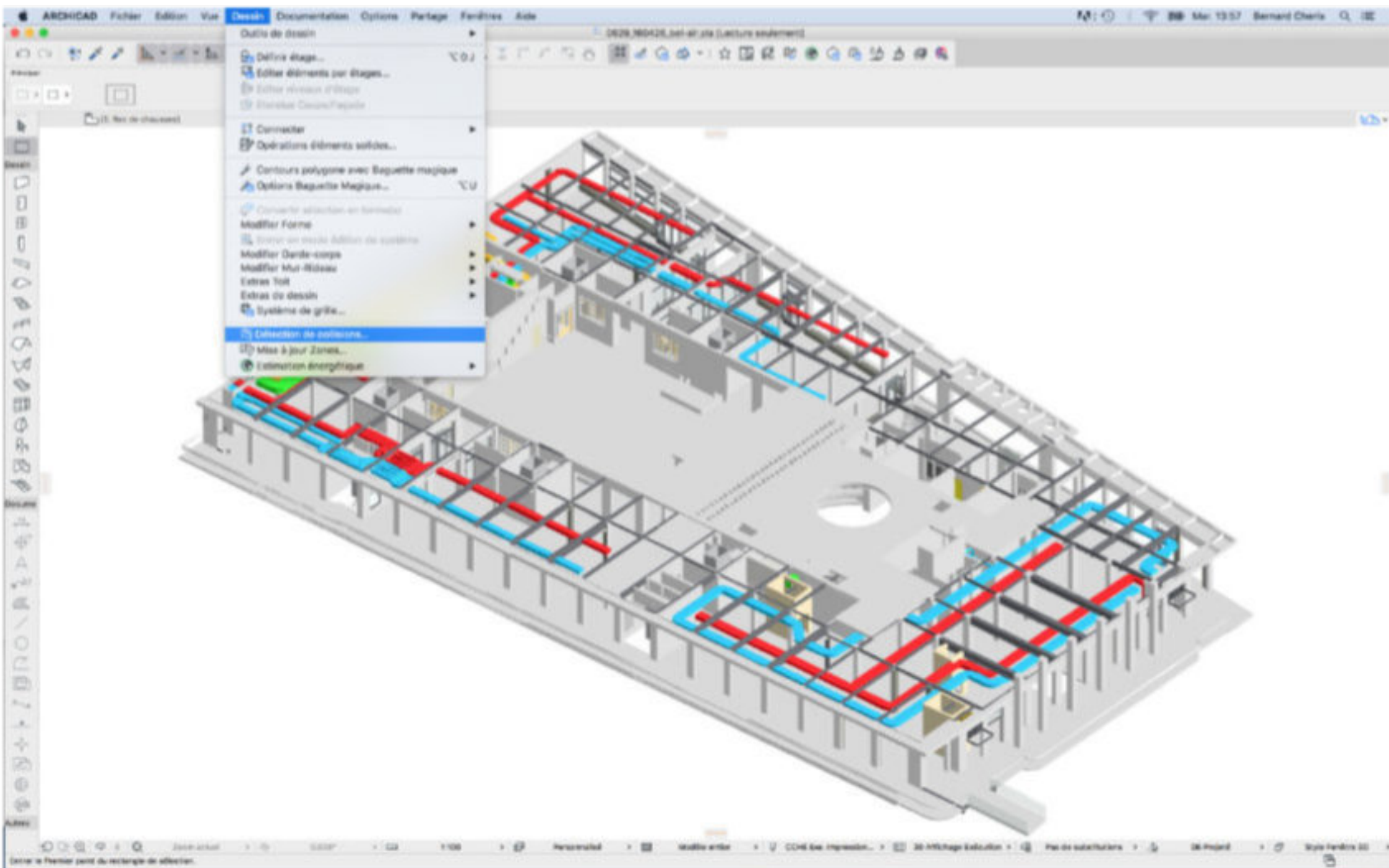
[illegible]

ARCHICAD 21

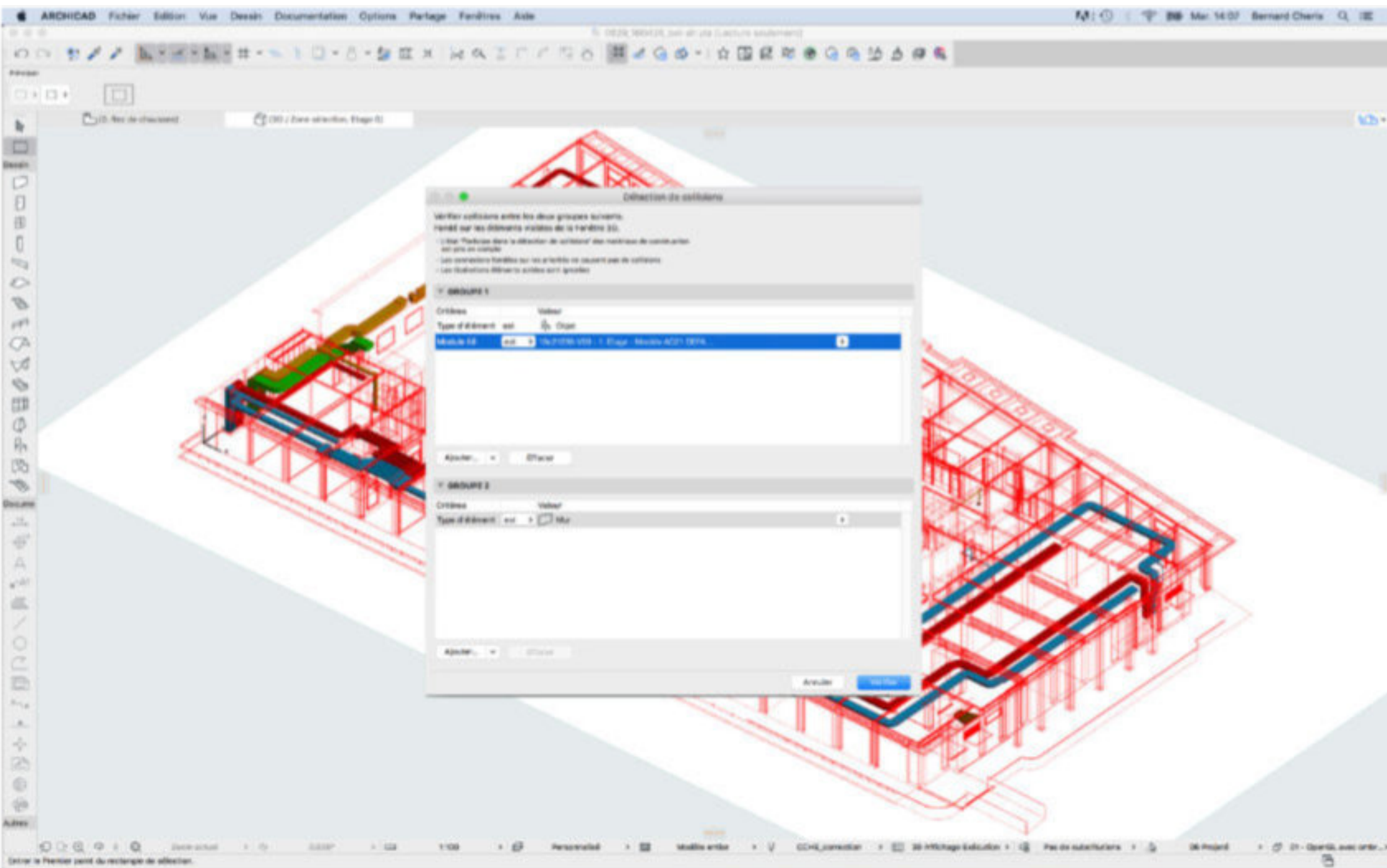
Grafisoft (Nemetschek)



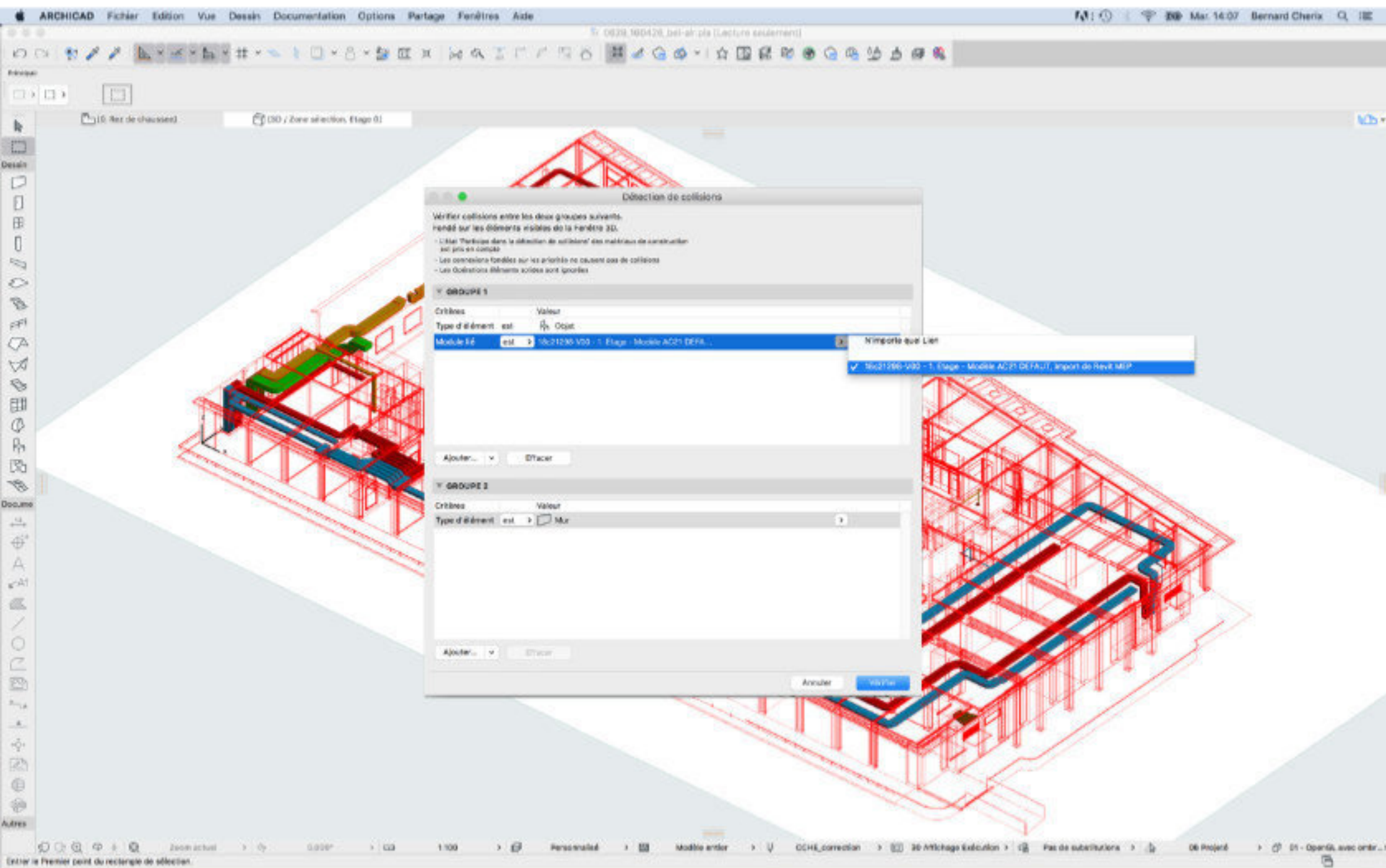
DETECTION DE COLLISION INTÉGRÉ



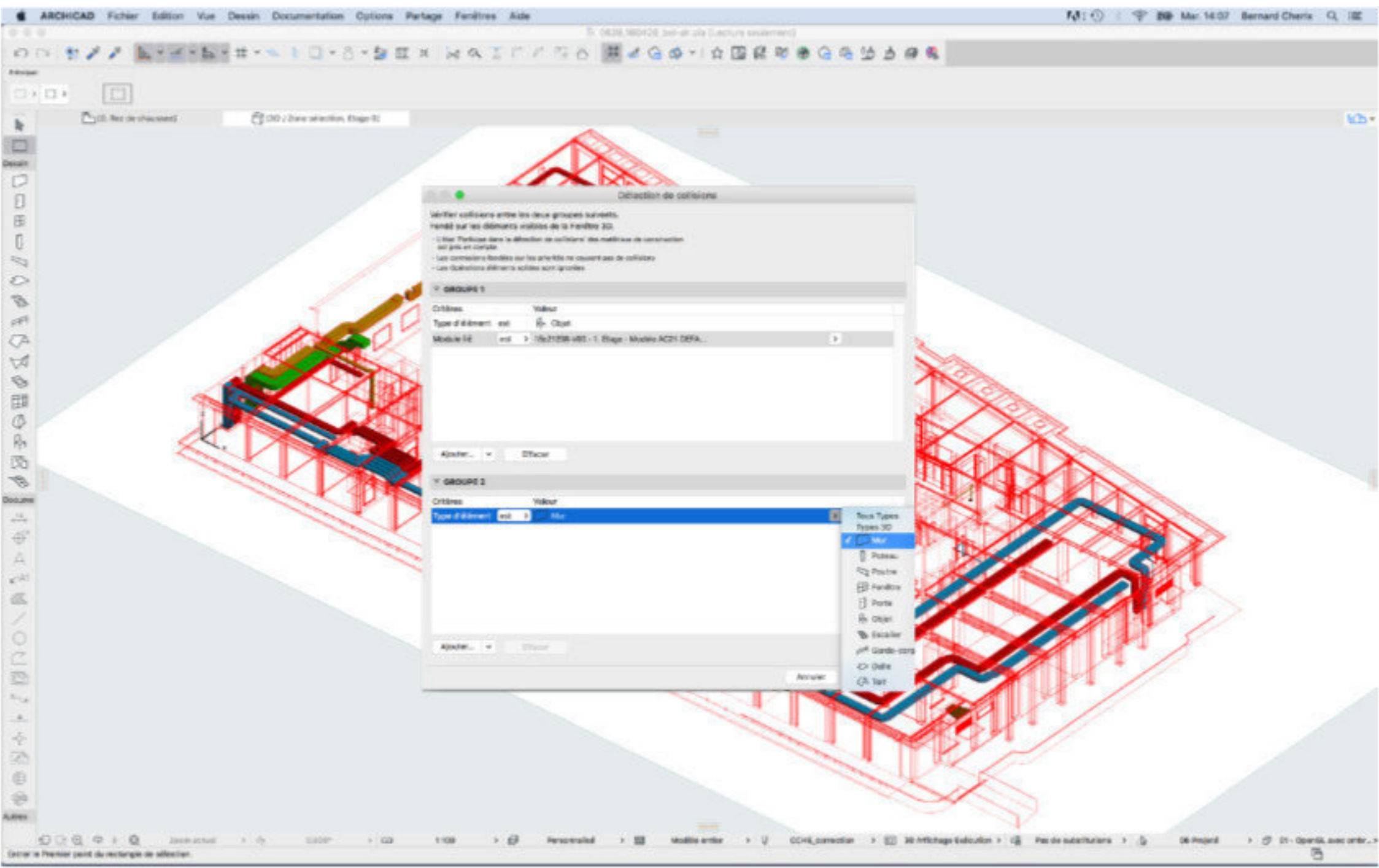
PARAMÈTRES DE DÉTECTION



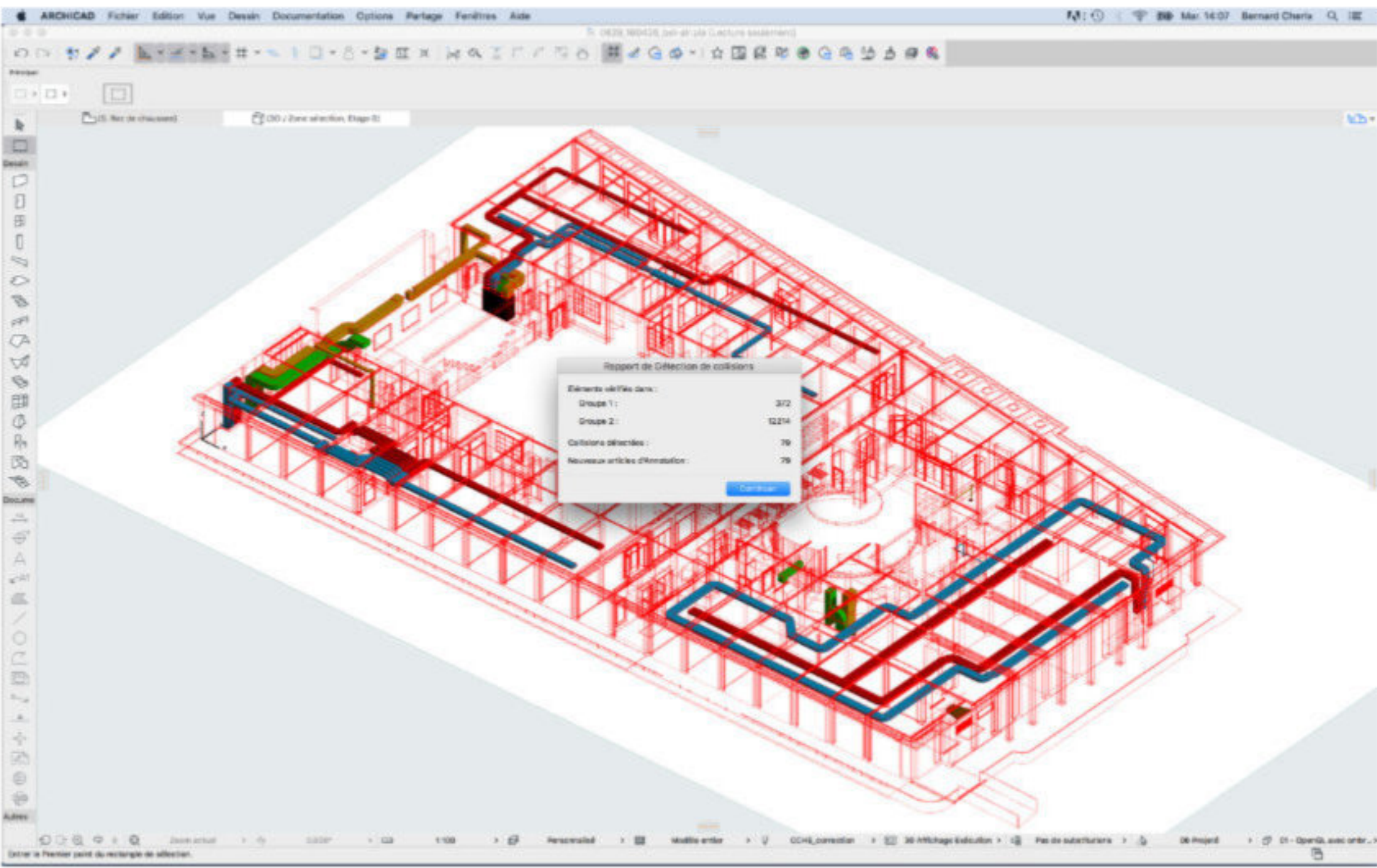
PARAMÈTRES DE DÉTECTION



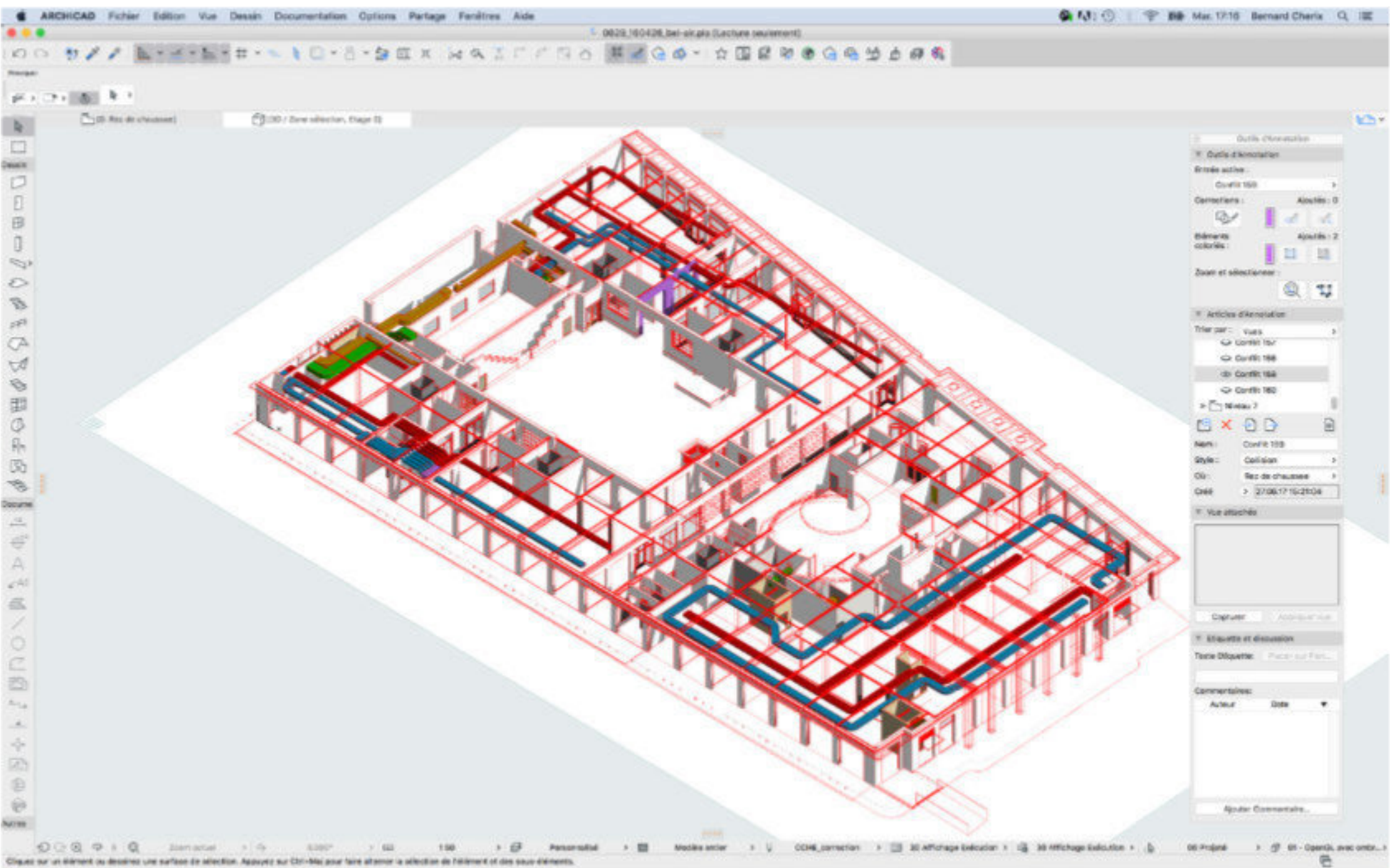
PARAMÈTRES DE DÉTECTION



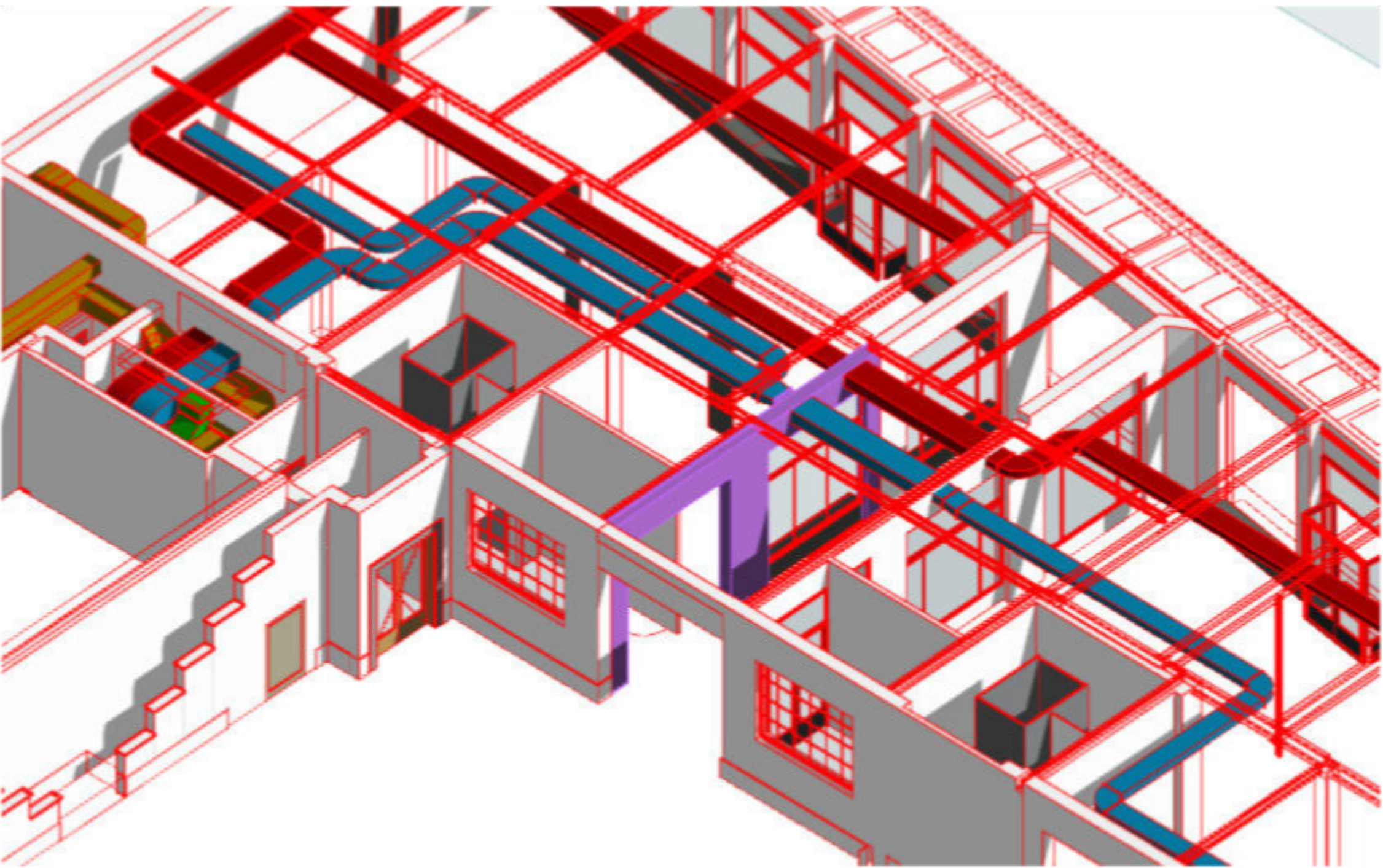
DÉTECTION DE COLLISION



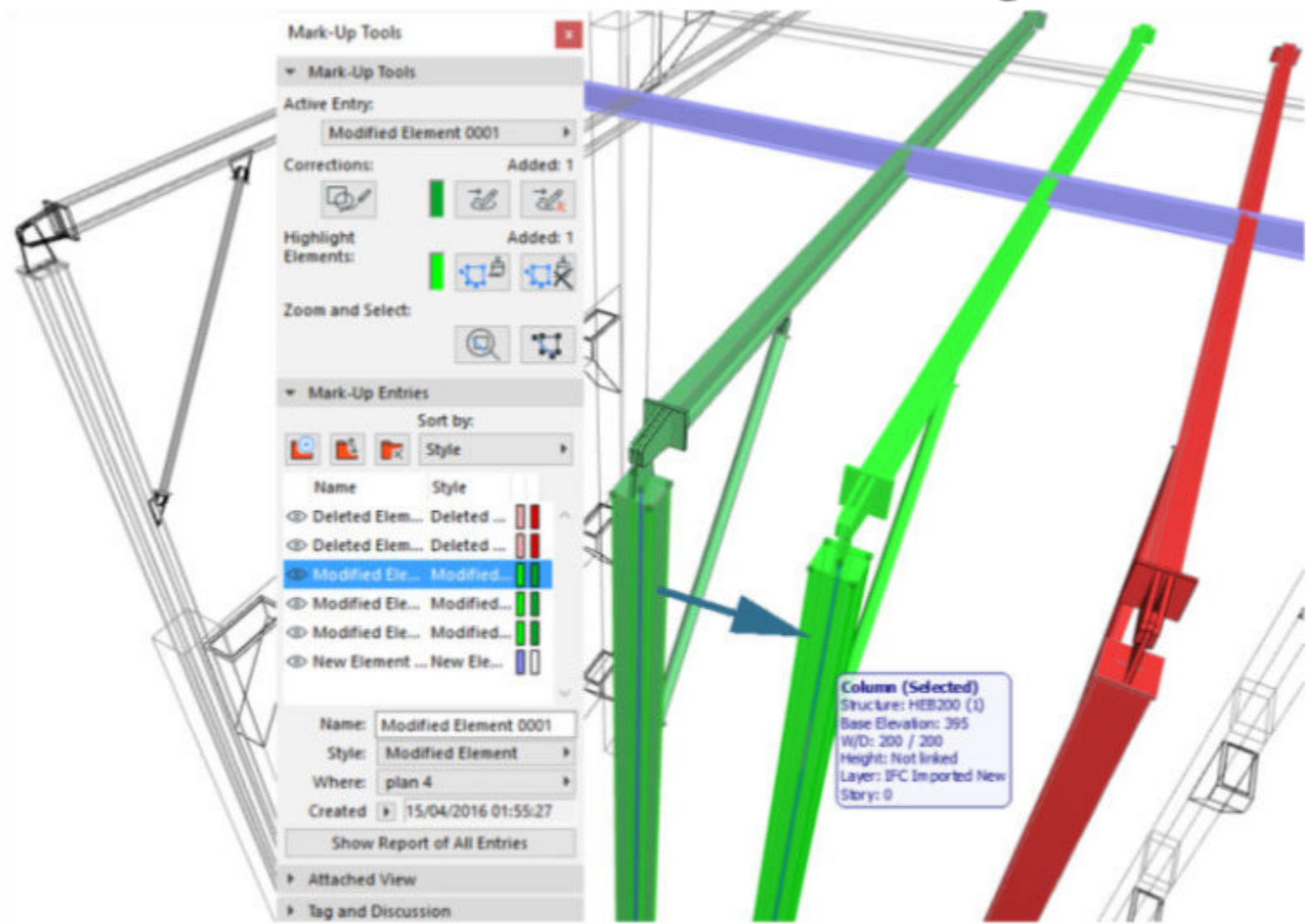
EXEMPLE DE COLLISION



> PLAN DE PERCEMENTS



OUTIL D'ANNOTATIONS: recherche de changements



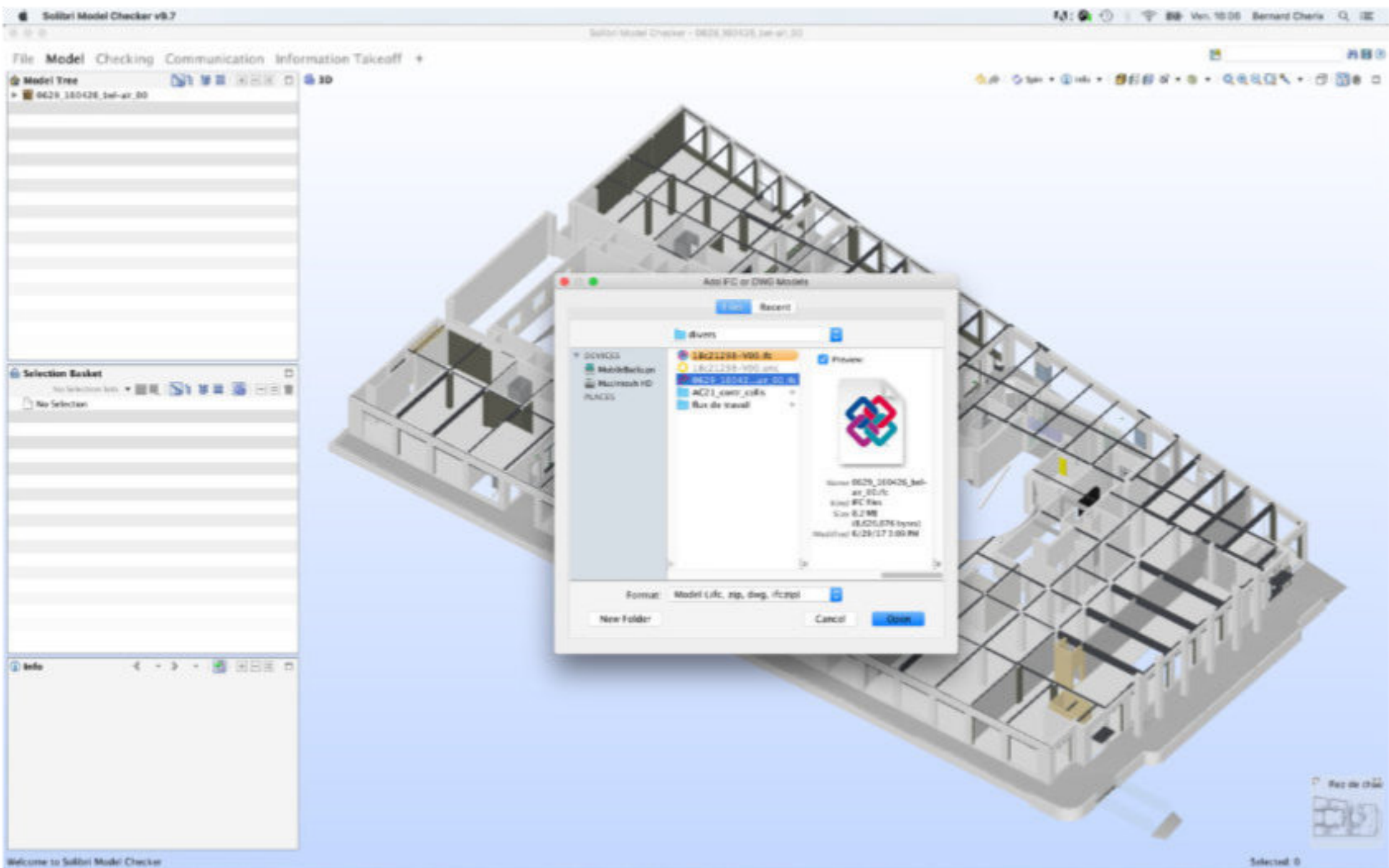
SOLIBRI MODEL CHECKER

Nemetschek

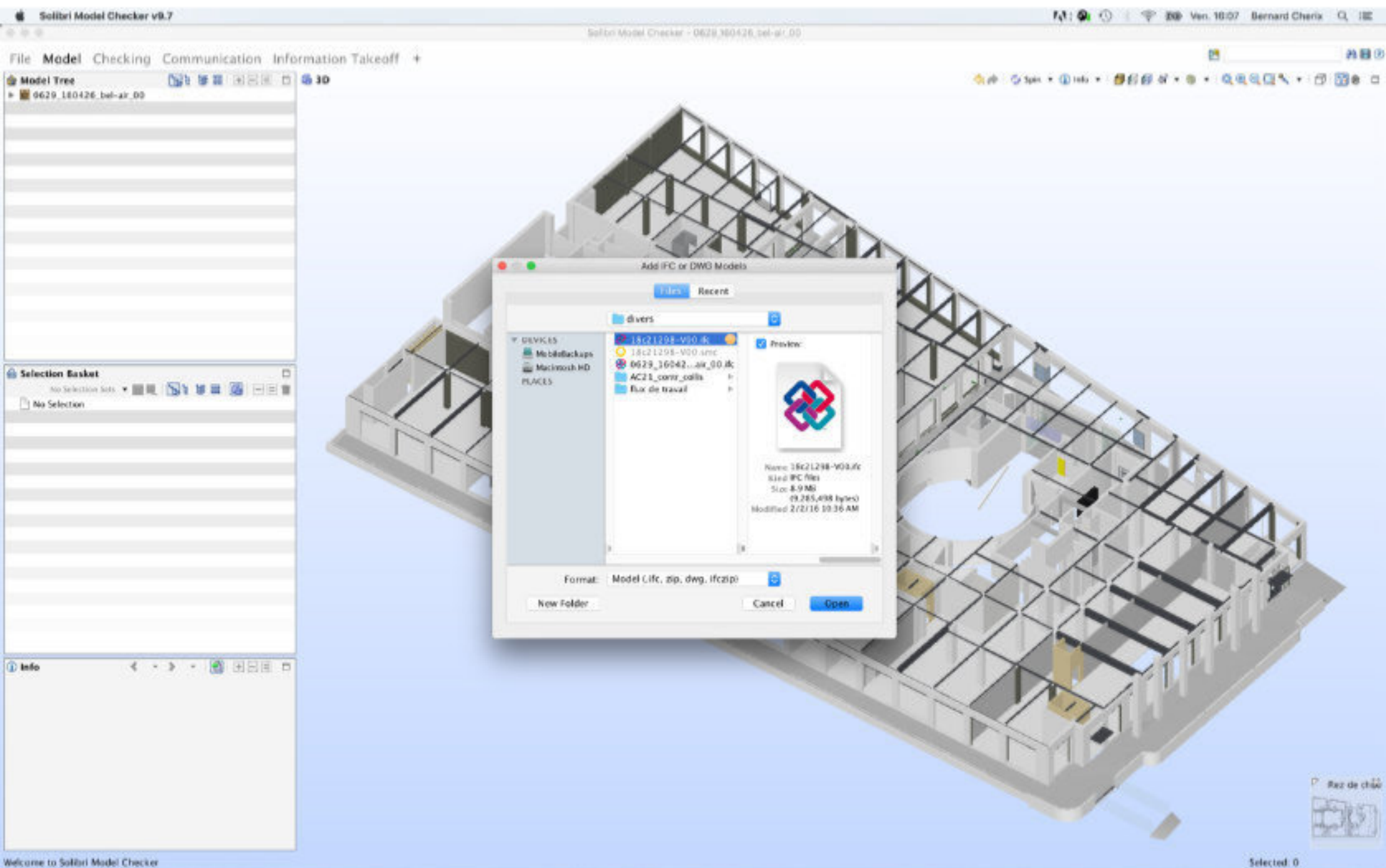


SOLIBRI MODEL CHECKER

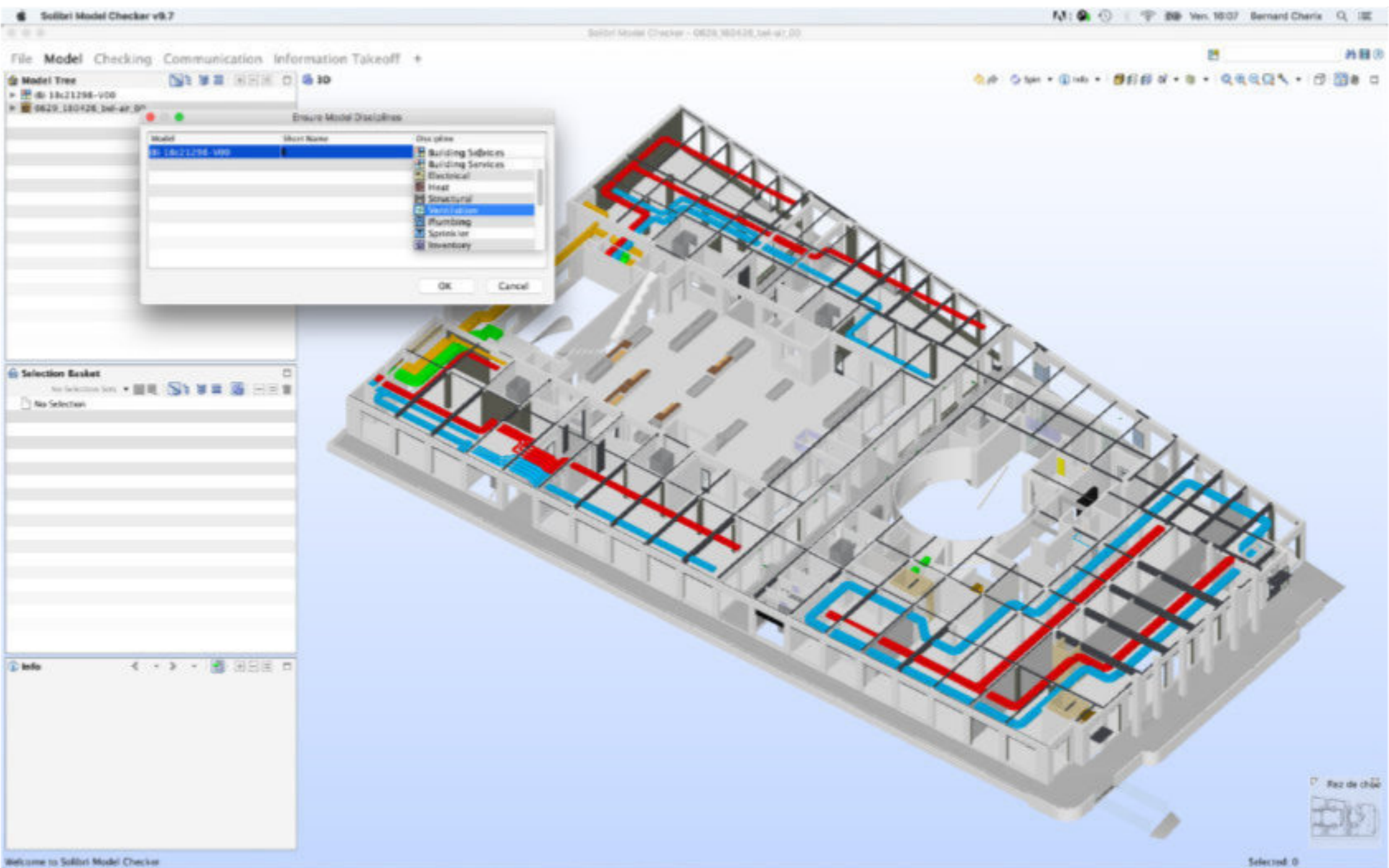
IMPORT DU MODÈLE ARCHITECTE



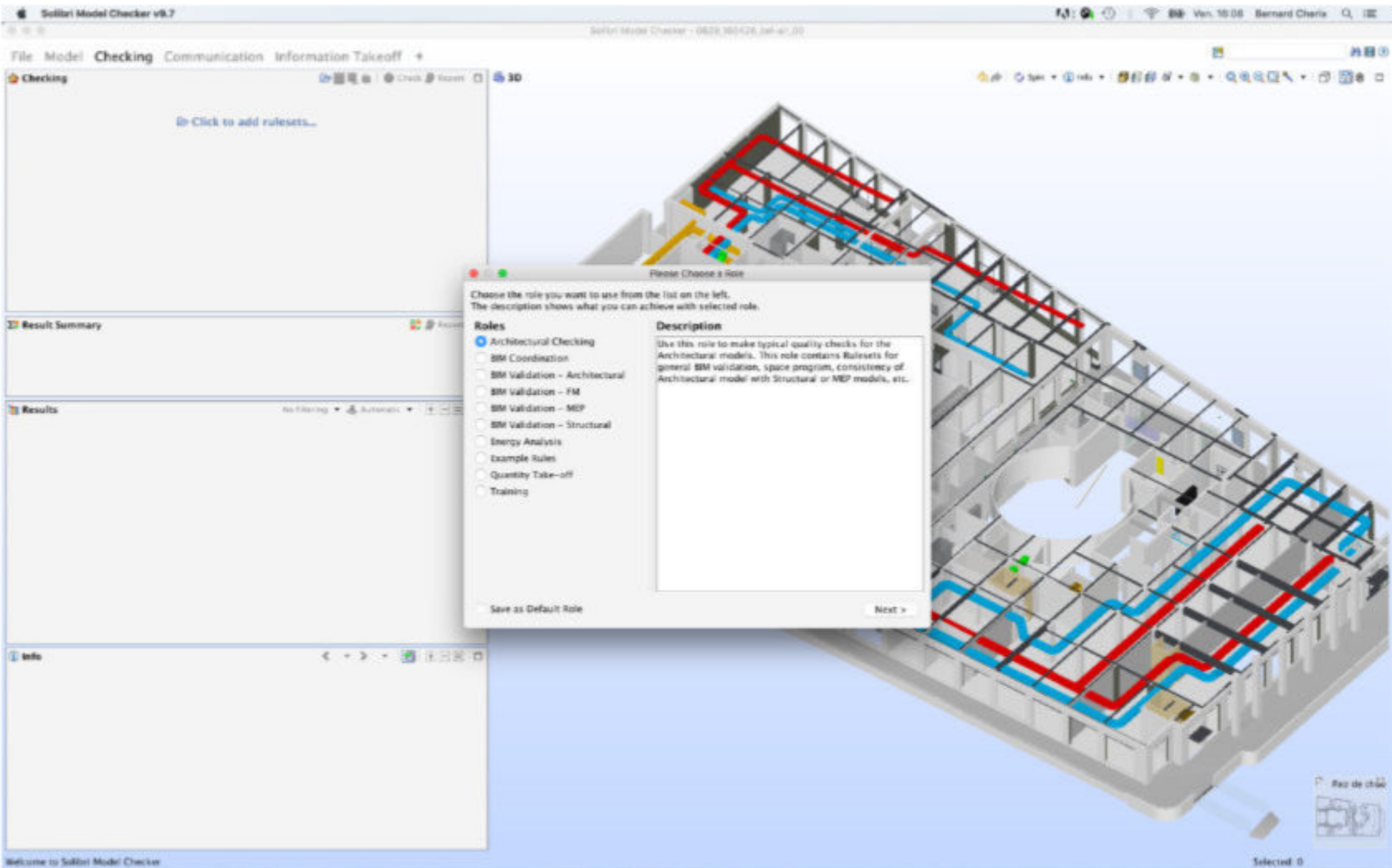
IMPORT DU MODÈLE D'UN MANDATAIRE TIERS



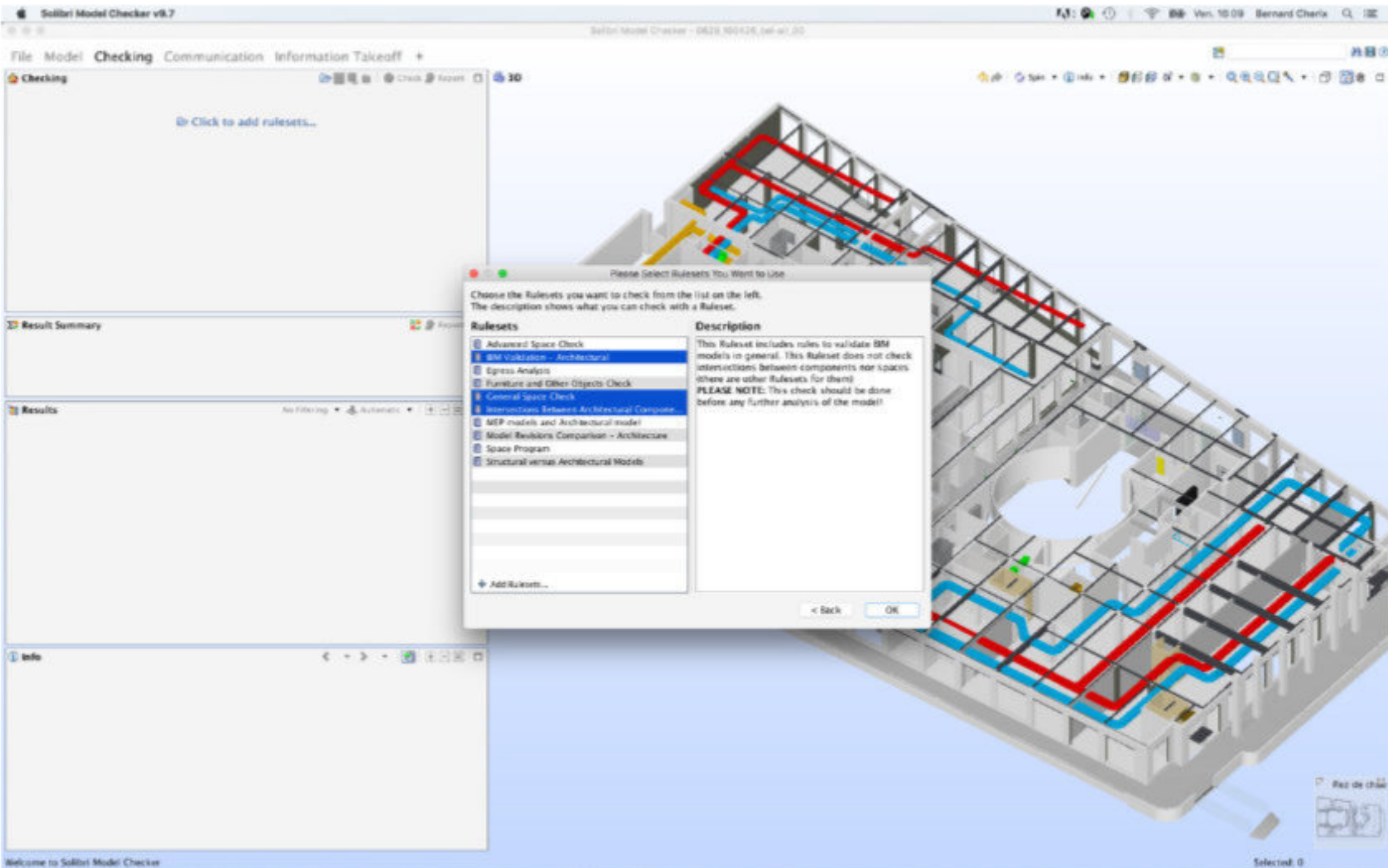
CONFIRMATION DE LA DISCIPLINE



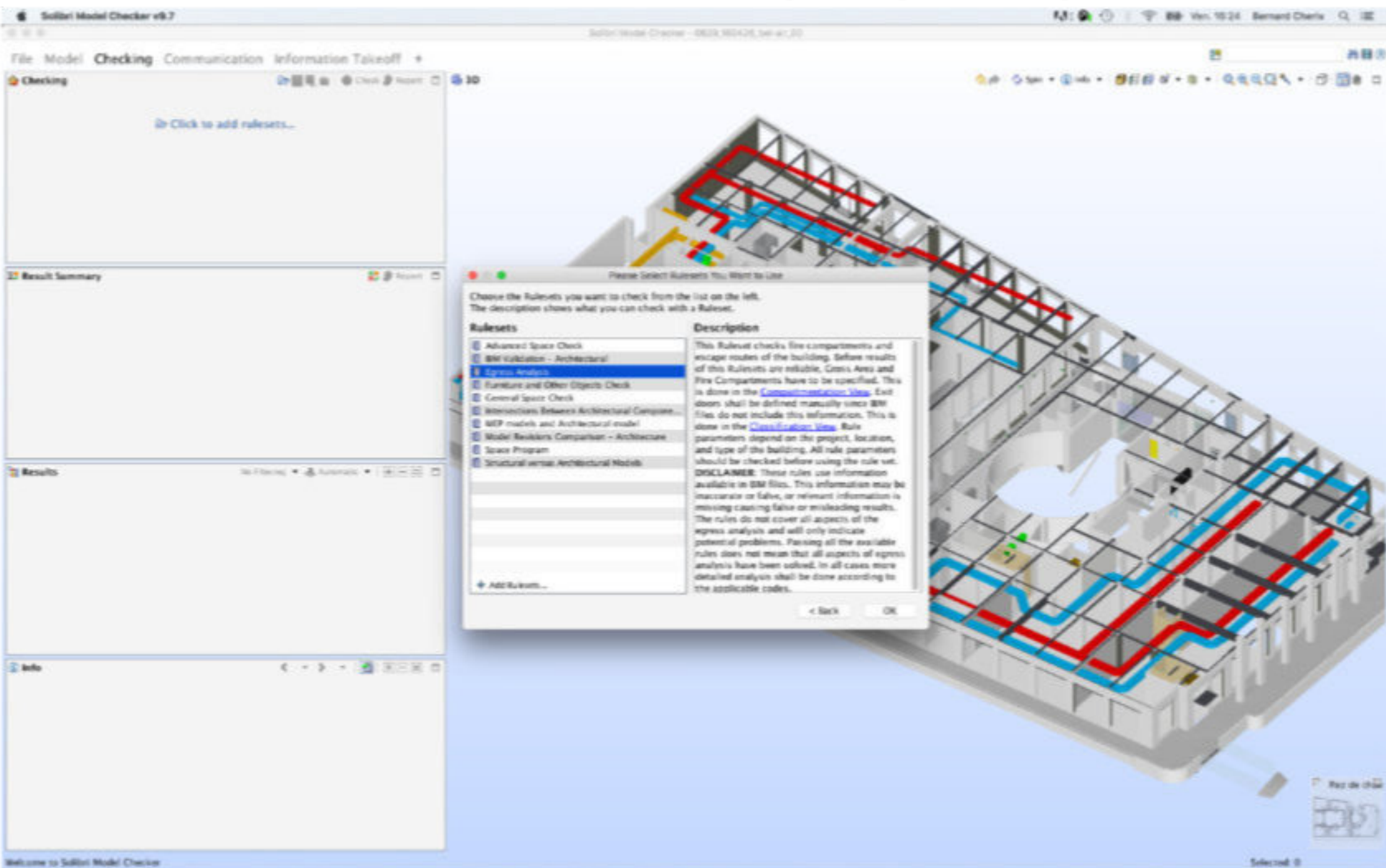
CHOIX DU RÔLE DU CONTRÔLEUR : architecte



i.e. CONTRÔLE & VALIDATION ARCHITECTURALE



i.e. ISSUES DE SECOURS > respect prescriptions AEA1



CHOIX DU RÔLE DU CONTRÔLEUR : génie civil

The screenshot displays the Solibri Model Checker v8.7 interface. The main window shows a 3D model of a building structure with red and blue lines indicating structural elements. A dialog box titled "Please Choose a Role" is open in the center, prompting the user to select a role from a list on the left. The list includes options like Architectural Checking, BM Coordination, BM Validation - Architectural, BM Validation - FM, BM Validation - MEP, BM Validation - Structural (selected), Energy Analysis, Example Rules, Quantity Take-off, and Training. The description for the selected role is displayed on the right. The interface also includes a left sidebar with panels for Checking, Result Summary, Results, and Info, and a top menu bar with File, Model, Checking, Communication, and Information Takeoff.

Solibri Model Checker v8.7

File Model Checking Communication Information Takeoff

Checking

Click to add rulesets...

Result Summary

Results

Info

Please Choose a Role

Choose the role you want to use from the list on the left. The description shows what you can achieve with selected role.

Roles

- ☐ Architectural Checking
- ☐ BM Coordination
- ☐ BM Validation - Architectural
- ☐ BM Validation - FM
- ☐ BM Validation - MEP
- ☒ BM Validation - Structural
- ☐ Energy Analysis
- ☐ Example Rules
- ☐ Quantity Take-off
- ☐ Training

Description

Use this role to validate general quality of Structural models. This contains Rulesets for QA/QC and selected Information Takeoffs. It is recommended that these checks are performed prior to further analysis since the dependability and usability of the results, and reliability of information depends on the quality of the model.

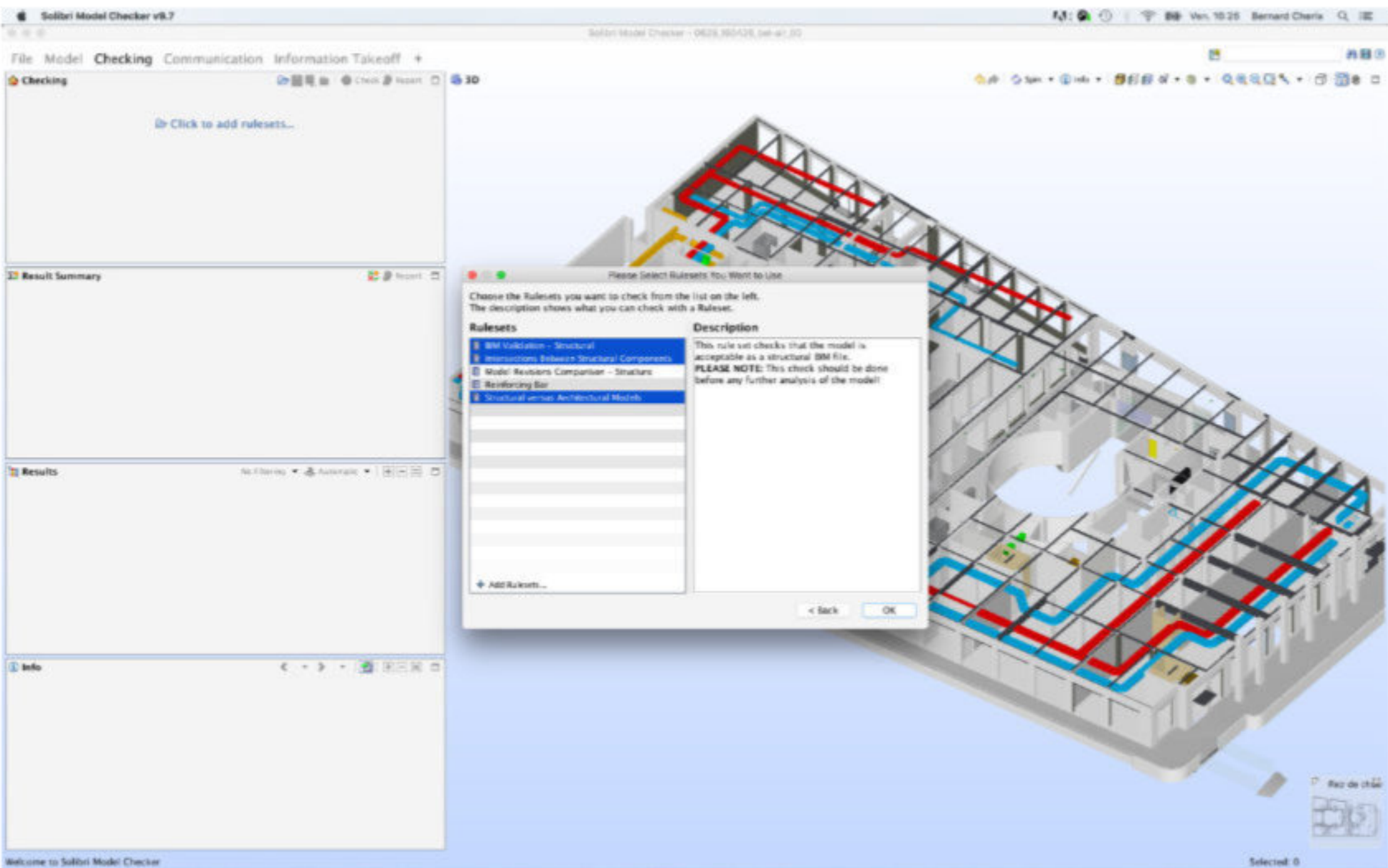
☐ Save as Default Role

Next >

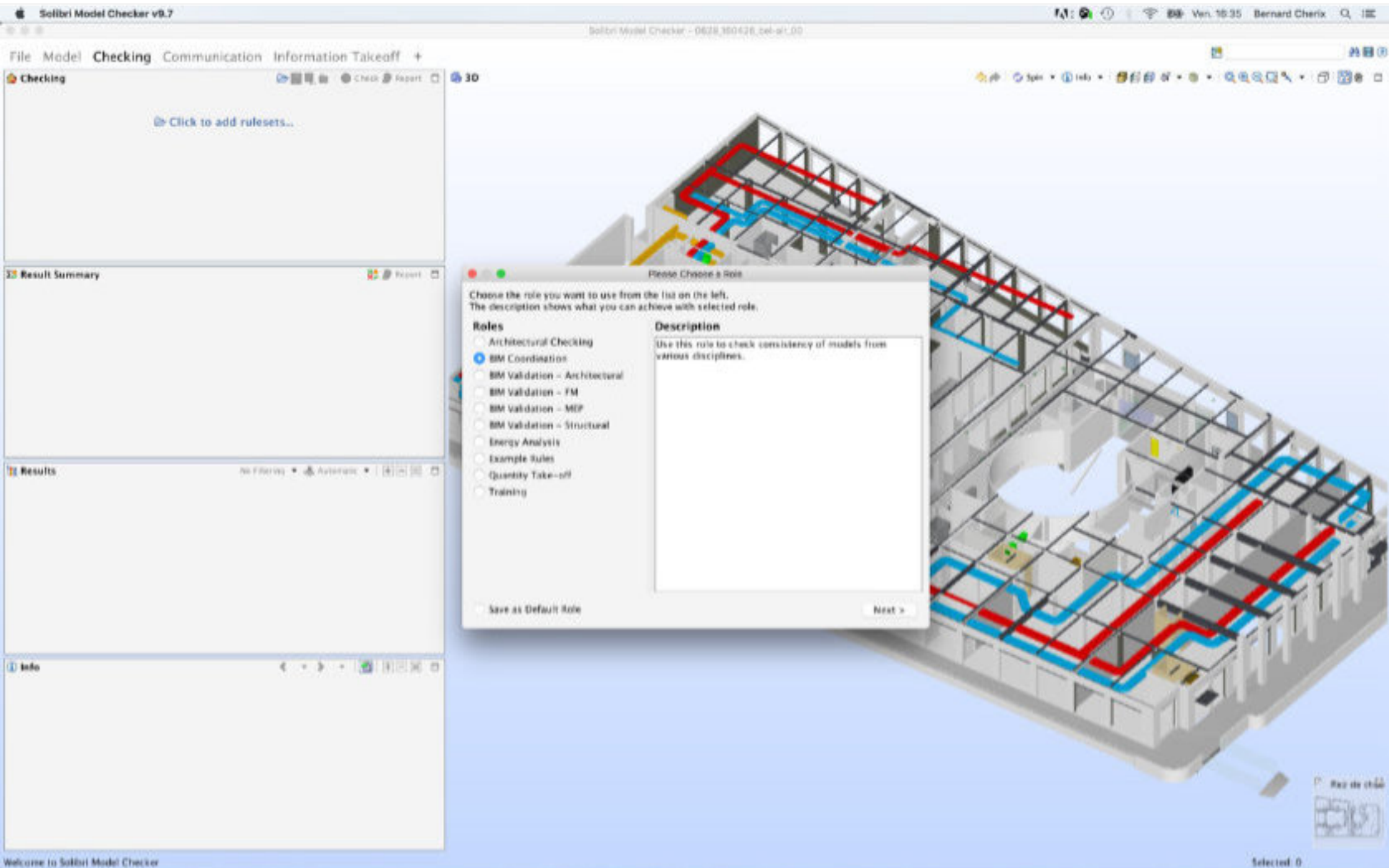
Welcome to Solibri Model Checker

Selected: 0

i.e. CONTRÔLE & VALIDATION STRUCTURELLE



CHOIX DU RÔLE DU CONTRÔLEUR : coordinateur BIM



CONTRÔLE DE COLLISION : architecture-ventilation

Solibri Model Checker v9.7

Solibri Model Checker - 0629_M0426.dwg-01_00

File Model Checking Communication Information Takeoff +

Te-De 03/19

30

Checking

Ruleset

- MEP models and Architectural model
- MEP models and Structural model
- Structural versus Architectural Models

Result Summary

	13	59	16	0	0
Issue Count	13	59	16	0	0
Issue Density	0.90	4.8	1.1	0	0

Results

Please select a checked rule with results.

Info

MEP models and Architectural model

Description

This ruleset checks locations of components in MEP models referring to architectural model.

Checked: 6/30/17 4:36 PM
Checked Model Version: 1 (6/30/17 4:35 PM)
Current Model Version: 1 (6/30/17 4:35 PM)

Welcome to Solibri Model Checker

Rule: BIM Coordination Selected: 0

RÉSUMÉ DES RÉSULTATS

Solibri Model Checker v9.7

Solibri Model Checker - 0629_380426_bef-air_D0

File Model Checking Communication Information Takeoff +

To-Do 0/5

3D

Checking

Rules

- MEP models and Architectural model
 - Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulation Not Included)
 - Building Services and Other Construction Components (Insulation)
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
 - Distance between Components
 - Spaces and MEP
 - MEP models and Structural model
 - Structural versus Architectural Models

Result Summary

	10	10	6	0	0
Issue Count	10	10	6	0	0
Issue Density	0.65	1.2	0.42	0	0

Results

No Filtering Automatic

Results

- Intersections of Sub (9/4)
- Intersections of Wall (5/10)

Info

Building Services and Other Construction Components (Insulation Not Included)

Discover Hyperlinks

This rule checks intersections between building services and other construction components. This rule doesn't check MEP insulations (Covering). There is a separate rule for that. Note that

- ducts, pipes and cable carriers going through partition walls do not create issues (check Exceptions in rule [Parameters](#))
- small pipes going through slabs or suspended ceilings do not make an issue

Solibri, Inc. - 2014-09-10

Welcome to Solibri Model Checker

Rule: BIM Coordination Selected: 0

RÉSUMÉ DES RÉSULTATS : collisions critiques...

Solibri Model Checker v9.7

Solibri Model Checker - 0629_M0426_caf-ar_00

File Model Checking Communication Information Takeoff +

To-Do 0/10

Checking 30

Building Services and Architectural model

- Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulations Not Included)
 - Building Services and Other Construction Components (Insulations Not Included)
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
- Distance between Components
- Spaces and MEP
- MEP models and Structural model
- Structural versus Architectural Models

Result Summary

Issue Count	Issues with Critical Severity	Issues with High Severity	Issues with Medium Severity	Issues with Low Severity	Issues with Info
0	14	6	0	0	0
Issue Density	0.42	0.42	0	0	0

Results

No Filtered | Automatic

- Intersections of Sub (0/4)
- Intersections of Wall (0/10)

Info

Building Services and Other Construction Components (Insulations Not Included)

[Description](#) [Hyperlink](#)

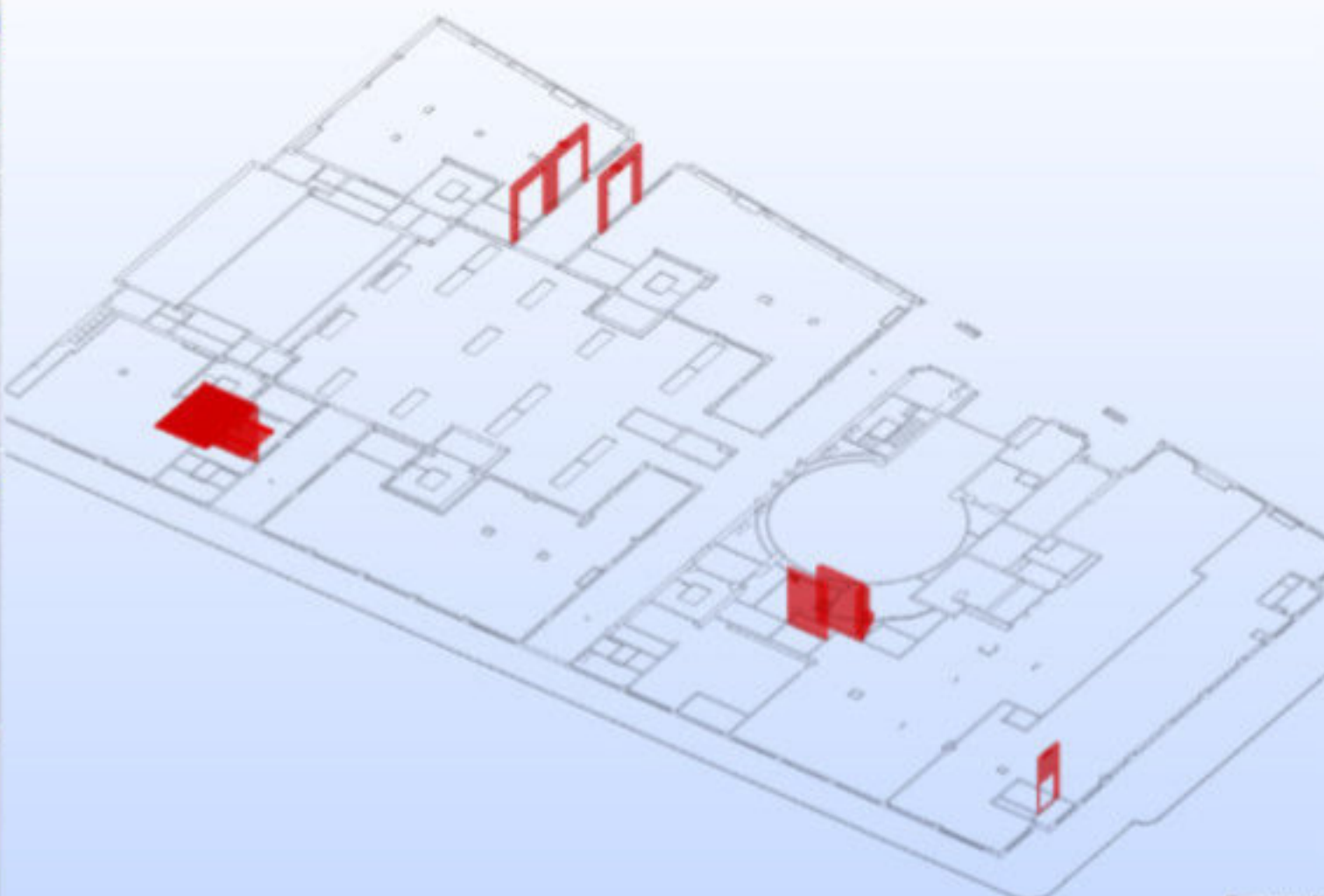
This rule checks intersections between building services and other construction components. This rule doesn't check MEP insulations (Coverings). There is a separate rule for that. Note that:

- ducts, pipes and cable carriers going through partition walls do not create issues (check Exceptions in rule [Parameters](#))
- small pipes going through slabs or suspended ceilings do not make an issue

(Solibri, Inc. - 2014-09-10)

Wellcome to Solibri Model Checker

Rule: BIM Coordination Selected: 0



The image shows a 3D architectural model of a building floor plan. Several critical collisions are highlighted in red. These include a large rectangular area in the lower-left, a complex intersection of multiple walls and structural elements in the center-right, and a vertical wall intersecting a horizontal wall in the upper-right. The model is rendered in a light blue color scheme, with the highlighted collision areas in a bright red. The interface includes a sidebar with a tree view of the model's structure, a result summary table, and a detailed description of the selected collision rule.

RÉSUMÉ DES RÉSULTATS : collisions modérée...

The screenshot displays the Solibri Model Checker v9.7 interface. The main window shows a 3D model of a building with several yellow rectangular markers indicating moderate collision issues. The left sidebar contains the 'Checking' and 'Results' panels.

Checking Panel:

- MEP models and Architectural model
- Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulations Not Included)
 - Building Services and Other Construction Components (Insulations)
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
- Distance between Components
- Spaces and MEP
- MEP models and Structural model
- Structural versus Architectural Models

Result Summary:

Issue Count	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Issue Count	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Issue Density	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Results Panel:

- Intersection of Sub (0/4)
- Intersection of Wall (0/10)

Info Panel:

Building Services and Other Construction Components (Insulations Not Included)

[Hyperlink](#)

This rule checks intersections between building services and other construction components. This rule doesn't check MEP insulations (Coverings). There is a separate rule for that. Note that:

- ducts, pipes and cable carriers going through partition walls do not create issues (check Exceptions in rule [Parameters](#))
- small pipes going through slabs or suspended ceilings do not make an issue

Solibri, Inc. - 2014-09-10

Welcome to Solibri Model Checker

Rule: BIM Coordination Selected: 0

RÉSUMÉ DES RÉSULTATS : collisions mineures...

Solibri Model Checker v9.7

Solibri Model Checker - 0629_380426_bef-ar_20

File Model Checking Communication Information Takeoff

Checking 30

Rules

- MTP models and Architectural model
 - Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulations Not Included)
 - Building Services and Other Construction Components (Insulations Not Included)
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
 - Distance between Components
 - Spaces and MEP
 - MEP models and Structural model
 - Structural versus Architectural Models

Result Summary

	High	Medium	Low	Errors	Warnings
Issue Count	10	10	0	0	0
Issue Density	0.65	1.2	0	0	0

Results

No Filtering Automatic

- Intersections of Sub (5/4)
- Intersections of Wall (5/10)

Info

Building Services and Other Construction Components (Insulations Not Included)

Hyperlinks

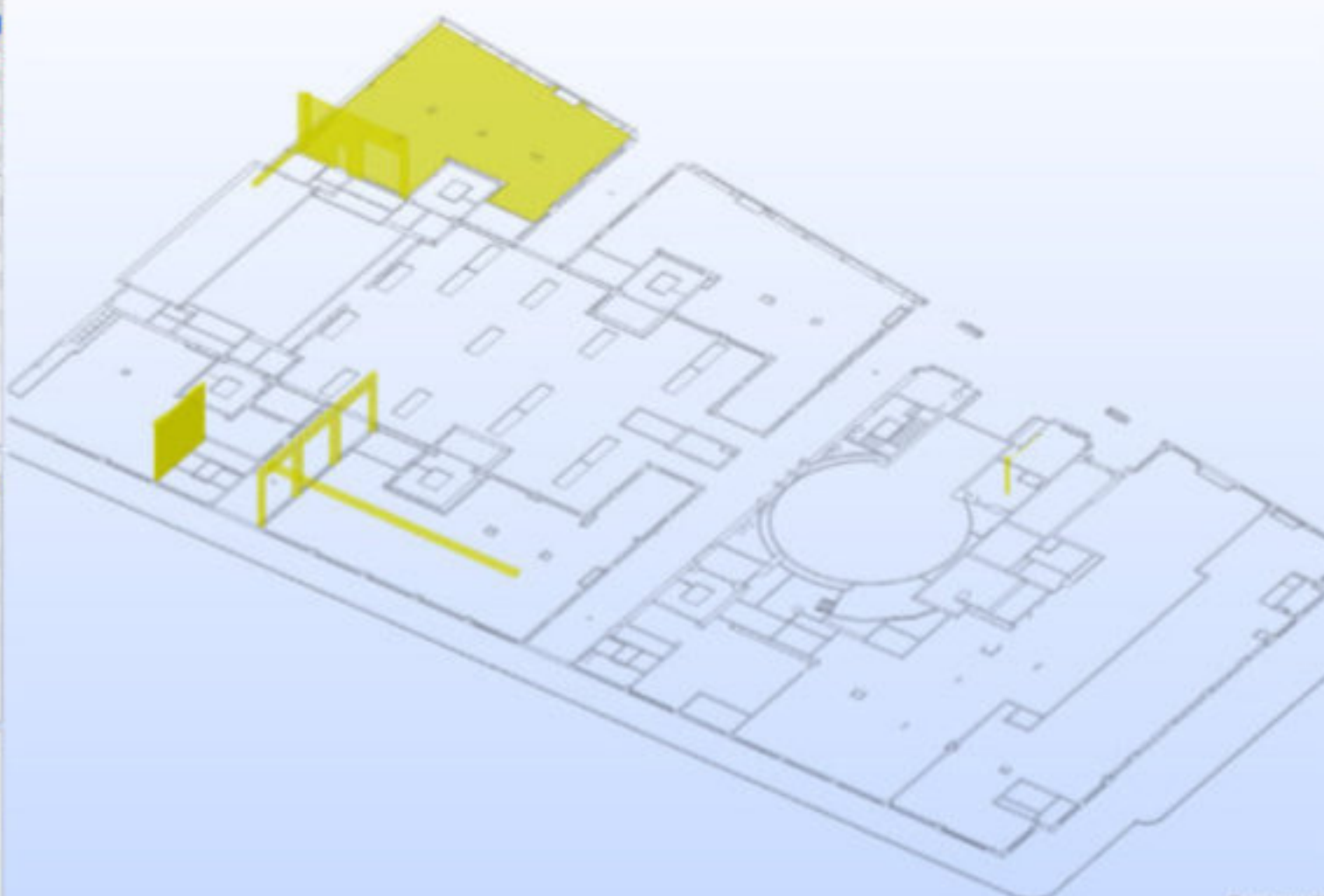
This rule checks intersections between building services and other construction components. This rule doesn't check MEP Insulations (Coverings). There is a separate rule for that. Note that:

- ducts, pipes and cable carriers going through partition walls do not create issues (check exceptions in rule [Parametric](#))
- small pipes going through slabs or suspended ceilings do not make an issue

Solibri, Inc. - 2014-09-10

Welcome to Solibri Model Checker

Rule: BIM Coordination Selected: 0



DESCRIPTIF DE LA COLLISION

Sollibri Model Checker v9.7

Sollibri Model Checker - 0629_360426_bell-air_D0

File Model Checking Communication Information Takeoff +

Checking 30

MEP models and Architectural model

- Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulation Not Included)
 - Building Services and Other Construction Components (Insulation)
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
- Distance between Components
- Spaces and MEP
- MEP models and Structural model
- Structural versus Architectural Models

Result Summary

Issue Count	0	10	20	30	40
Issue Density	0.00	1.2	0.42	0	0

Results

No Filtering Automatic

Results

- Intersections of Slab (0/4)
- Intersections of Wall (0/30)
 - Wall 0.1200 (015 Macromerit 2130749665 300) (0/1)
 - Wall 0.1334 (BA mur Rez - cr+plate+ar+br concrete+pers 4071710040 350) (0/2)
 - Wall 0.205 (BA mur Rez - cr+plate+ar+br concrete+pers 4071710040 350) (0/2)
 - BA mur Rez - cr+plate+ar+br concrete+pers 4071710040 350 and CH_V_Air
 - Wall 0.115 (Came rectangulaire 500 xH 200 mm and Wall 0.205 (BA mur Rez - cr+plate+ar+br concrete+pers 4071710040 350 and CH_V_Air
 - BA mur Rez - cr+plate+ar+br concrete+pers 4071710040 350 and CH_V_Air
 - Wall 0.215 (011 Brique 3343442753 175) (0/1)
 - Wall 0.486 (015 Macromerit 2130749665 300) (0/3)
 - Wall 0.819 (015 Macromerit 2130749665 300) (0/1)
 - Wall 0.889 (015 Macromerit 2130749665 300) (0/3)

Info

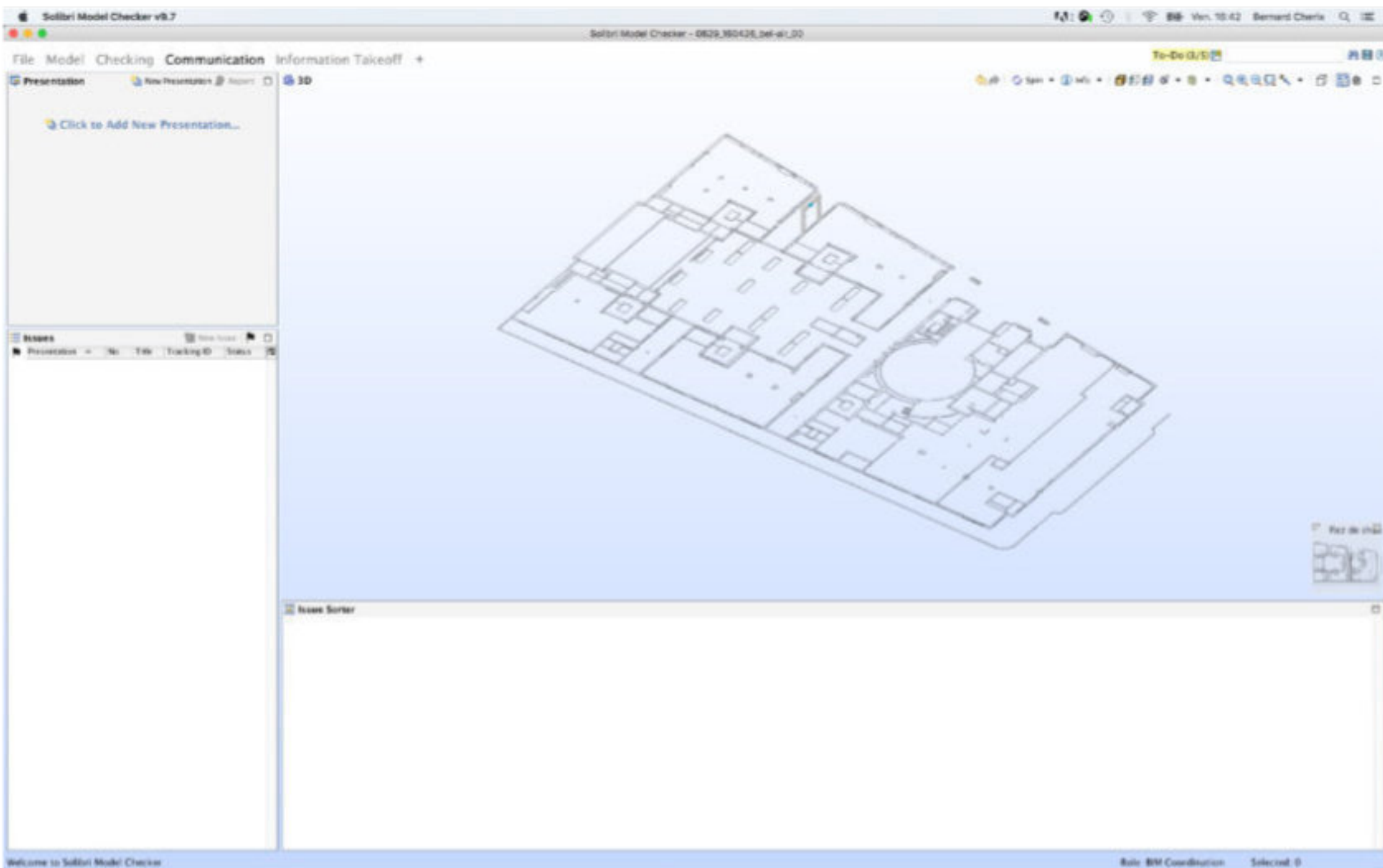
Wall 0.115 (Came rectangulaire 500 xH 200 mm and Wall 0.205 (BA mur Rez - cr+plate+ar+br concrete+pers 4071710040 350) (0/2)

The depth, width, height, and volume of the intersections are: (B) Duct 0.115, Wall 0.205, 500 mm, 350 mm, 200 mm, 35 l

Welcome to Sollibri Model Checker

Rule BIM Coordination Selected 0

OUVERTURE D'UN DOSSIER DE COLLISIONS TYPES



AJOUT D'UNE ICÔNE RELATIVE À LA COLLISION

Solibri Model Checker v9.7

Solibri Model Checker - 0629.380426_bel-air_D0

File Model Checking Communication Information Takeoff +

To-Do 0/5

30

Checking

Ruleset

- MEP models and Architectural model
 - Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulations Not Included)
 - Building Services and Other Construction Components (Insulation)
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
 - Distance between Components
 - Spaces and MEP
- MEP models and Structural model
- Structural versus Architectural Models

Result Summary

	10	10	6	0	0
Issue Count	10	10	6	0	0
Issue Density	0.65	1.2	0.42	0	0

Results

No Filtering Automatic

Results

- Intersections of Slab (0/4)
- Intersections of Wall (0/30)
 - Wall D.1260 (015 Macconerie 2130740665 350) (0/1)
 - Wall D.1334 (BA mur Rez : cr+plots+al+br ciment+pierr 4071710040 350) (0/2)
 - Wall D.205 (BA mur Rez : cr+plots+al+br ciment+pierr 4071710040 350) (0/2)
 - BA mur Rez : cr+plots+al+br ciment+pierr 4071710040 350 and CN V. Ar
 - BA mur Rez : cr+plots+al+br ciment+pierr 4071710040 350 and Wall D.205 (BA m
 - BA mur Rez : cr+plots+al+br ciment+pierr
 - Wall D.215 (011 Brique 3343442753 175) (0/1)
 - Wall D.486 (015 Macconerie 2130740665 350)
 - Wall D.839 (015 Macconerie 2130740665 350)
 - Wall D.869 (015 Macconerie 2130740665 350)

Info

(B) Duct B.115 (Came rectangulaire 500 xH 200 mm)

Description Hyper

The depth, width, height, and volume of the intersect

500 mm, 350 mm, 200 mm, 35 l

Add a new Slide

- Show Slides
- Add Slide
- Zoom to Slide
- Mark as Accepted
- Mark as Rejected
- Mark as Undefined
- Mark as Unhandled
- Add to Selection Basket
- Remove from Selection Basket
- Set to Selection Basket
- Section Box
- Highlight
- Zoom
- Hyperlinks

Rule: BM Coordination Selected: 0

STATUT DE LA COLLISION

The screenshot displays the Solibri Model Checker v9.7 software interface. The main window shows a 3D model of a building with a ventilation duct intersection highlighted in red. The left sidebar contains a 'Checking' panel with a tree view of the model's structure, including 'MEP models and Architecture', 'Building Services and Architecture', 'Building Services and Architecture', 'Building Services and Architecture', 'Building Services and Architecture', 'Insulations and Brackets', 'Insulations and Brackets', 'Distance between Components', 'Spaces and MEP', 'MEP models and Structural', and 'Structural versus Architectural'. Below this is a 'Result Summary' table showing counts for various issue types. The 'Results' panel lists several intersection issues, with 'Duct 0.115 L, Cane rectangulaire' selected. The 'Issue Details' panel on the right provides information about the selected issue, including its title, description, coordination status (Rejected), and a dropdown menu for the response (Open, Closed, Open, Resolved). The bottom status bar indicates 'Rule: BIM Coordination' and 'Selected: 0'.

DESCRIPTIF DE LA COLLISION i.e. passage gaine

Solibri Model Checker v9.7

File Model Checking Communication Information Takeoff +

Presentation 1 (1)

Issues

No.	Title	Tracking ID	Status
1	Percements	1	Open

Percements
bcherix, 2017-06-30 Passage

Issue Details

Title: Percements

Description: Passage gaine de ventilation

Coordination

Status: Open BCF Status: Error

Responsibilities: ABC +

Communication Components

Issue Sorter

Presentation 1

1

Percements

Welcome to Solibri Model Checker

Rule: BM Coordination Selected: 2 Tracking ID: 1 Status: Open 1/1

PUBLICATION DU DOSSIER DE COLLISIONS

Solibri Model Checker v9.7

Solibri Model Checker - 0629_M0426.dwg-ut_00

File Model Checking Communication Information Takeoff +

Te-Do 0/1/2

3D

Presentation 1 (1)

Issues

Perforations

bcherix, 2017-06-30 Passage gaine de ventilation

Open

Issue Sorter

Presentation 1

Perforations

Welcome to Solibri Model Checker

File BM Coordination Selected: 2 Tracking ID: 1 Status: Open 1/1

FORMAT DE LA PUBLICATION i.e. .xls / .bcf

The screenshot displays the Solibri Model Checker v8.7 interface. The main window shows a project titled "Presentation 1" with a status of "Open". The "Communication" tab is active, showing a list of reports under "Percelements". A "Create Report" dialog box is open, allowing the user to select a report type (e.g., BCF Report (BCFIP), General Report, Coordination Report) and options (e.g., Page Setup, Image Quality). A "Save Report" dialog box is also open, showing the file name "correction.bcfip" and a list of files in the "drives" folder. The "Issue Sorter" panel at the bottom left shows a list of issues, including "Percelements" and "bcherix, 2017-05-30 Passage gaine de ventilation".

Solibri Model Checker v8.7

File Model Checking Communication Information Takeoff +

Report Title: Presentation 1

Context: Report All Report Only Marked (0)

Report Type: BCF Report (BCFIP) v1.0 v2.0 General Report PDF RTT Coordination Report Excel

Options: Page Setup... Image Quality: High

Template: CoordinationReportTemplate.xls

Create Default... Save Report... Cancel

File Name: correction.bcfip

drives

New Folder Cancel Save As

Percelements

bcherix, 2017-05-30 Passage gaine de ventilation

Issue Sorter

Presentation 1

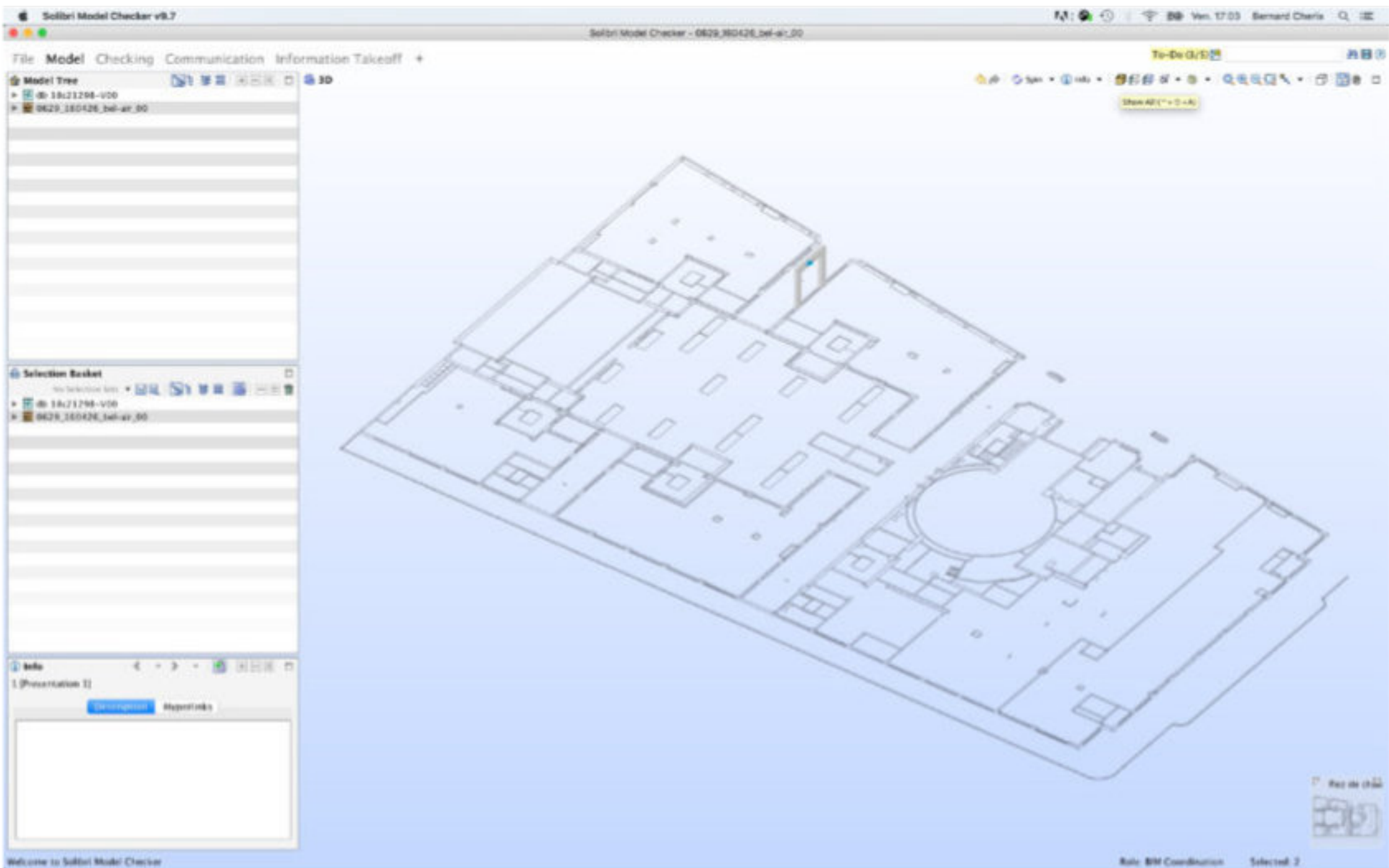
1

Percelements

Welcome to Solibri Model Checker

Rule: BIM Coordination Selected: 2 Tracking ID: 1 Status: Open 1/1

RETOUR À REPRÉSENTATION D'ORIGINE > show all



REPÉRAGE DE LA COLLISION DANS SOLIBRI MV

Solibri Model Viewer v9.6

File Model Checking Communication Information Takeoff

Presentation

Presentation 1 (1)

Issue Details

Title: Percements

Description: Passage gaine de ventilation

Viewpoint: [Thumbnail]

Comments: [Text Area]

Location: Rez de chaussée

OK Cancel

Percements
bcherix, 2017-06-30 Passage gaine de ventilation

Status: Open

Selected: 0 Tracking ID: 1 Status: Open 1/1

BIMcollab

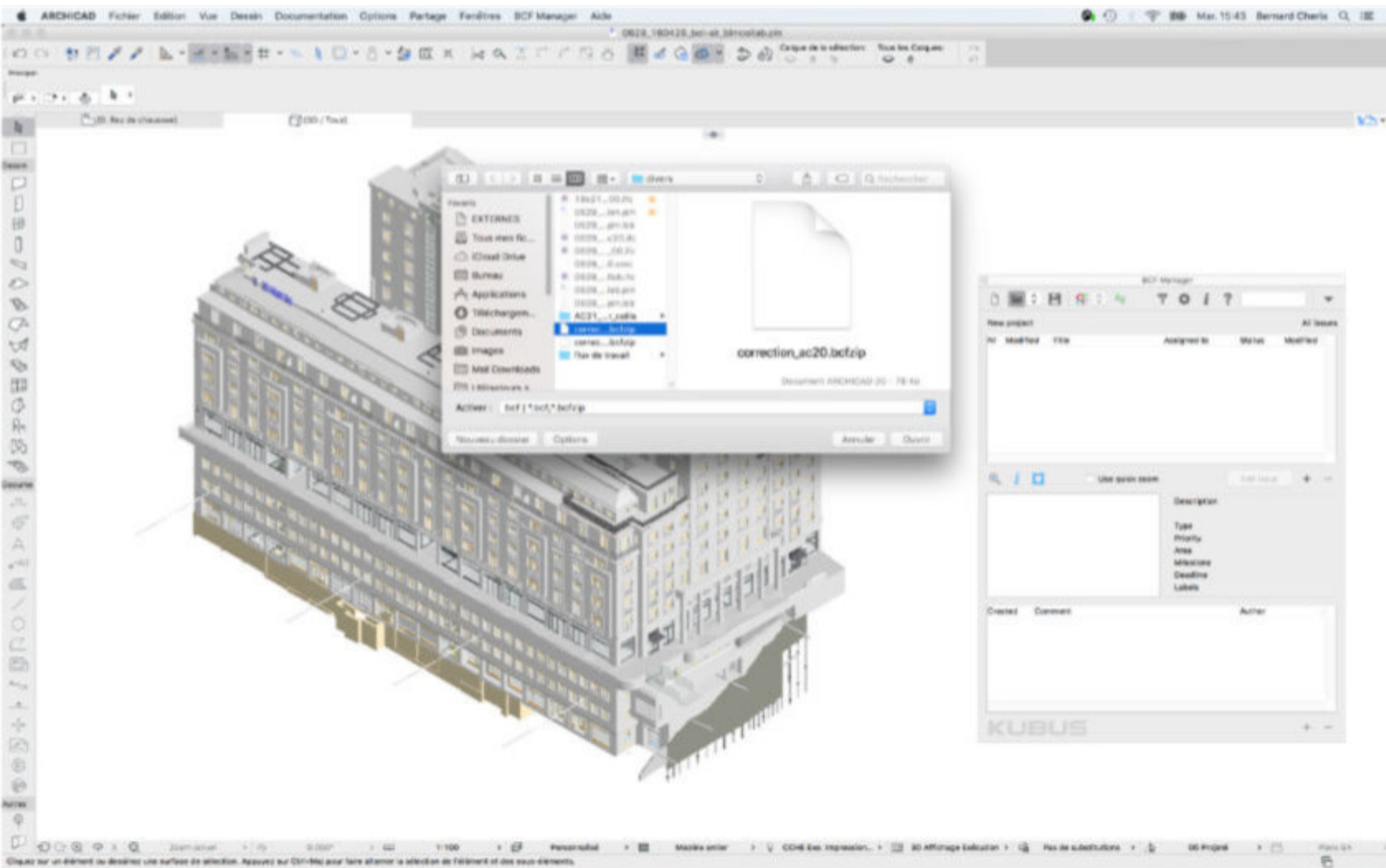
Kubus



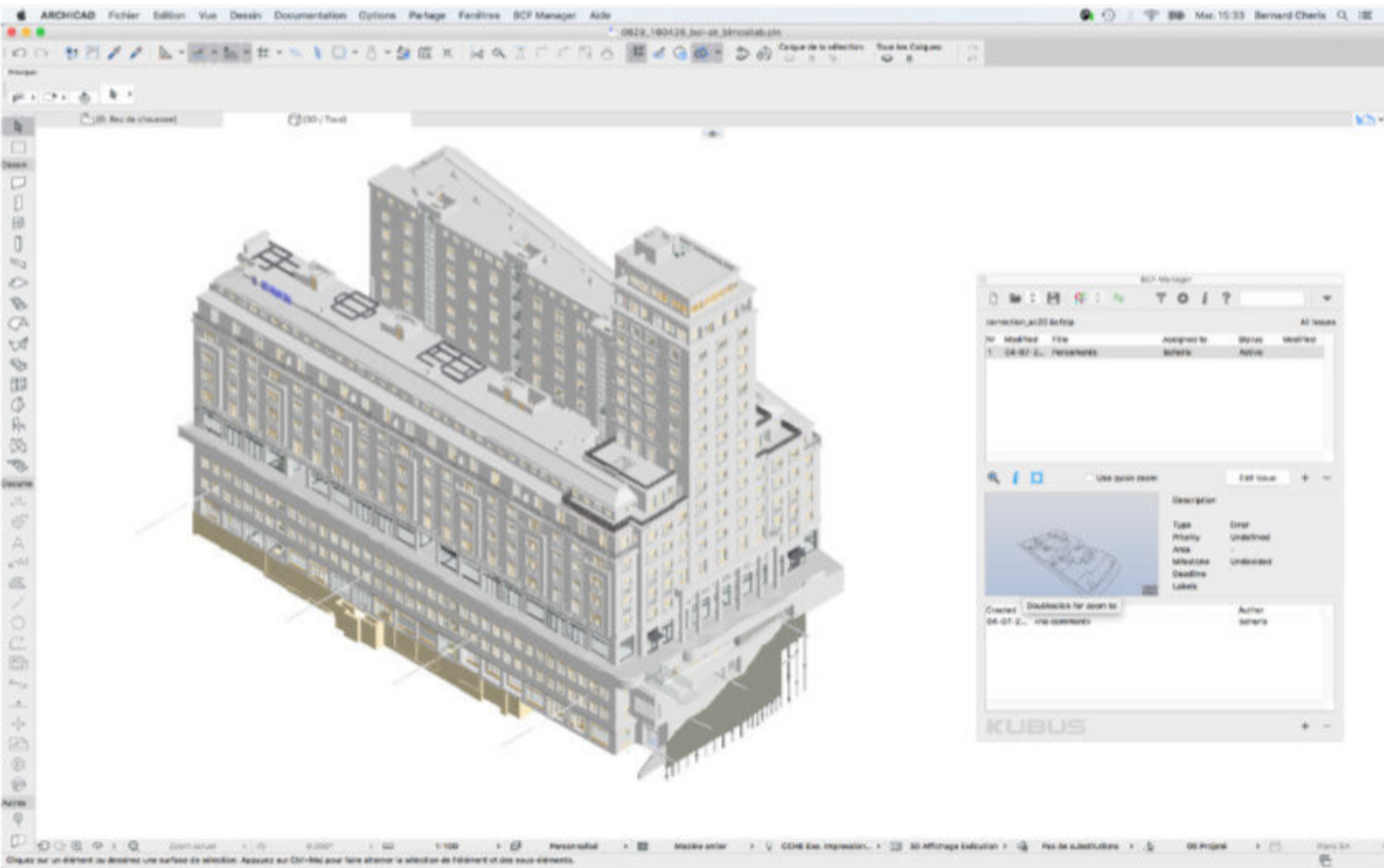
«MODÈLE EMBARQUÉ» > processus collaboratif en nuage



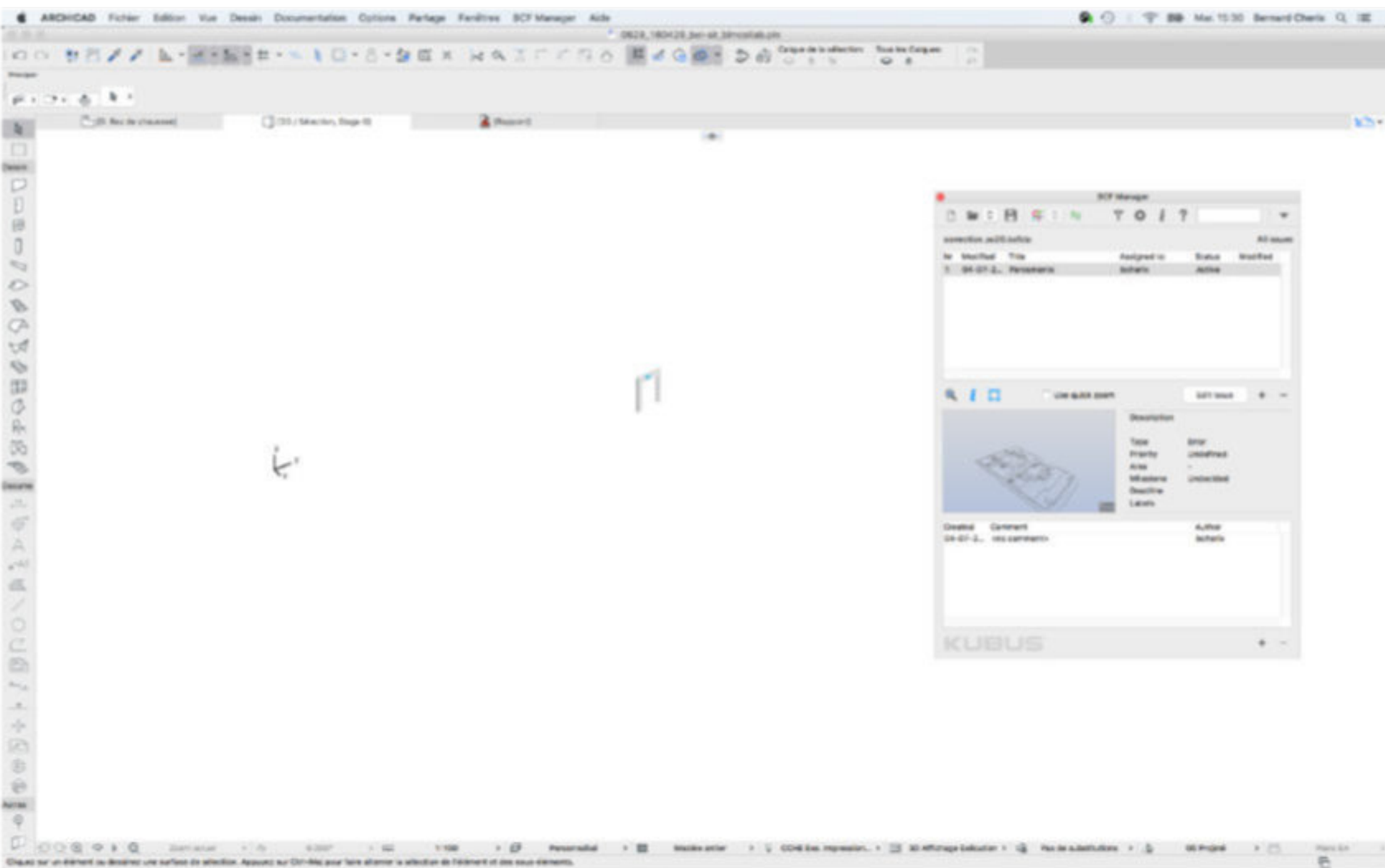
RÉCUPÉRATION DU BCF DANS CAD (add-on)



SÉLECTION DE LA COLLISION À RÉGLER



LOCALISATION DANS MAQUETTE PROPRIÉTAIRE



CLASSIFICATION DES TÂCHES...

BIM Manager

BIMcollab Example project

All issues

No	Modified	Title	Assigned to	Status	Actor
1	18-05-2016	Intersections check: bsa...	Fred Leopold	Closed	
2	14-03-2016	Intersections check: cbs...	Project Leader Kubus	Closed	
3	14-03-2016	Intersections check: wall...	Fred Leopold	Active	
4	14-03-2016	Intersections check: walls...	Fred Leopold	Active	
5	18-05-2016	Duplicate components sh...	Fred Leopold	Resolved	
6	14-03-2016	Duplicate components sh...	Christian Dehnen	Active	
7	28-02-2016	Ducts are designed in sta...	Project Leader Kubus	Active	
8	14-03-2016	Hollow core slab and sea...	Christian Dehnen	Resolved	
9	14-03-2016	Intersections of slab	Christian Dehnen	Active	
10	14-03-2016	Intersections of columns	Project Leader Kubus	Closed	
11	14-03-2016	Intersection ventilation an...	Project Leader Kubus	Resolved	
12	14-03-2016	Pipe too close to window...	Frans Buis	Active	
13	14-03-2016	Ventilation duct too close...	Christian Dehnen	Active	
14	18-04-2016	Sewer and hollowcore sla...	Christian Dehnen	Resolved	
15	14-03-2016	Manholes and profiled con...	Christian Dehnen	Active	
16	14-03-2016	Access is interrupted by s...	Christian Dehnen	Active	

Use quick zoom

Edit issue

Description

Type: Issue
Priority: Normal
Area: BIM Model protocol
Milestone: 02. Engineering Phase
Deadline: 15-02-2016
Labels: Architecture, Structure

Created: 16-10-2014
Comment: This will cause some problems, need to have a me...
16-10-2014 Air outlets MEP are clashing with slab.
Author: Deyne Parsons
Fred Leopold

KUBUS

QUESTIONS ?

vers le BIM niveau de maturité 3

8. PLATEFORMES COLLABORATIVES

SERVEUR CHEZ VOUS «pour magiciens»...



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Join the community of developers and innovate the industry!

About BiMserver.org

The Building Information Model server (BiMserver.org) platform enables you to create your own 'BIM Operating System'. The software core is based on the open standard IFC and therefore knows how to handle IFC data.

IFC data are interpreted by a smart core and stored as objects in an underlying database. On top of the database core features like merging, model checking, fusion, authorisation/authentication, comparing, etc. are available. Everything is based on plugins in an open framework and easy to tune.

The BiMserver software is free and open source (GNU Affero GPL) so it can be



BUILD FOR DEVELOPERS

Lots of interface protocols and libraries



OPENNESS IN MIND

Only open standards for data. No lock-in.



PLUGIN FRAMEWORK

Lots of plugins for flexibility



ENTERPRISE STABILITY

TRIMBLE CONNECT



INTEGRATE WITH US

We help the world's top integrators bring people, technology & information together in one place.

LET'S WORK TOGETHER
INTEGRATE WITH TRIMBLE CONNECT

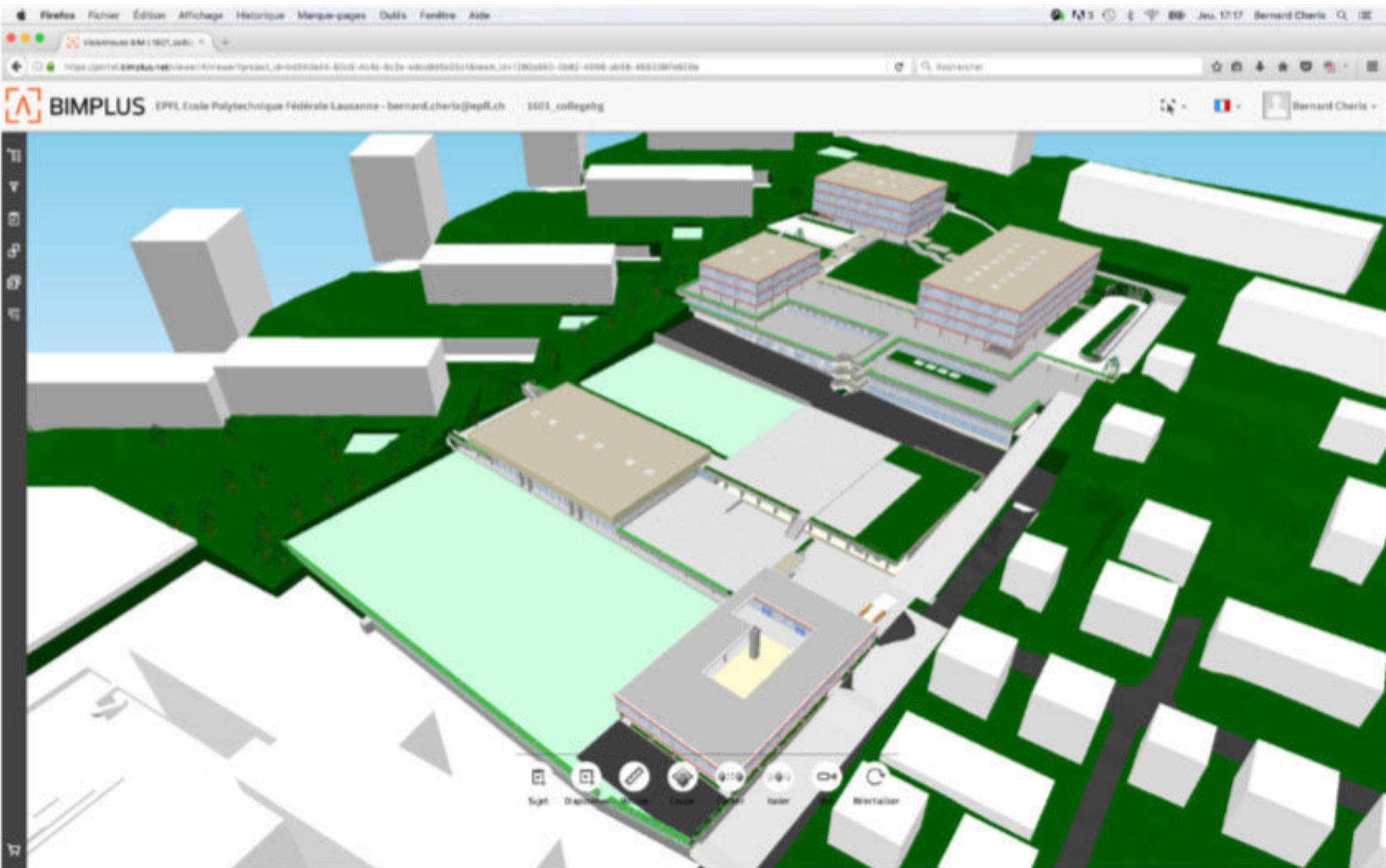
See how well we play with others.

BRINGING PEOPLE, TECHNOLOGY & INFORMATION
TOGETHER TO DELIVER EVERYTHING YOU NEED

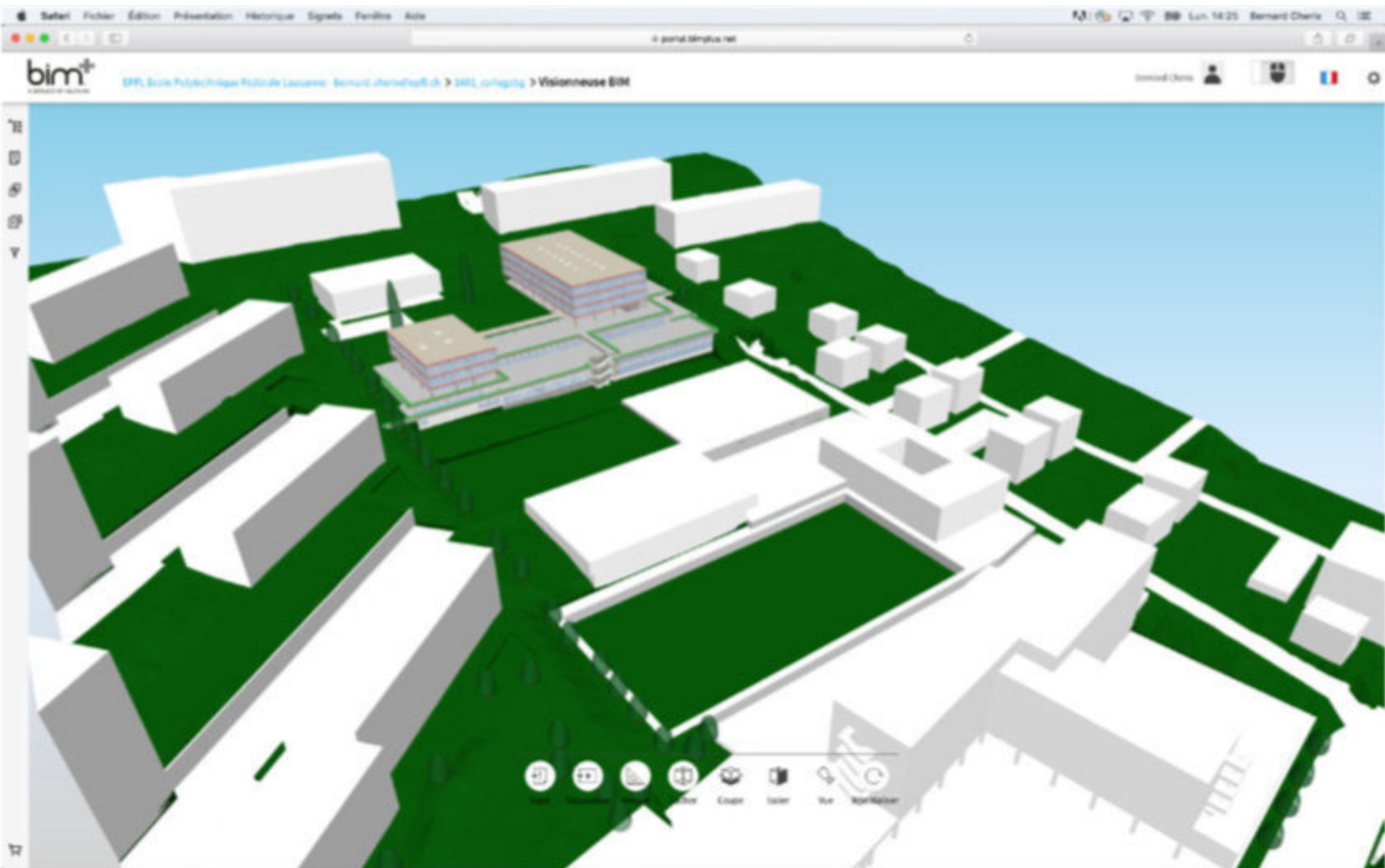
Integrate with us.

ALLPLAN BIM+

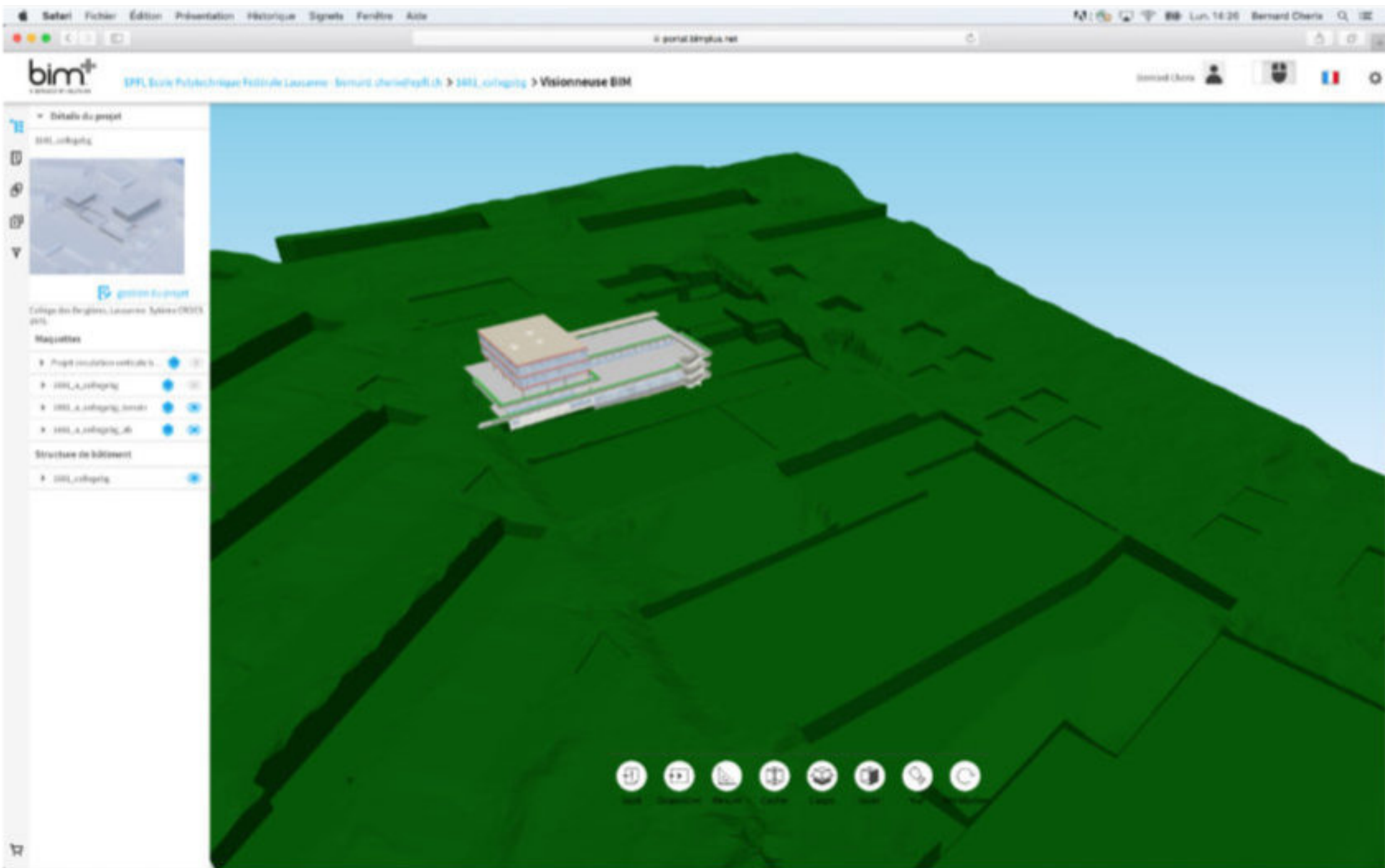
NOUVELLE INTERFACE



TEST AVEC GROUPES CG : RESSLab Pr.Nussbaumer



VISUALISATION PAR MAQUETTE



VISUALISATION PAR ÉLÉMENT : ici MEP

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L'ANALYSE NUMÉRIQUE

EPFL, École Polytechnique Fédérale de Lausanne bernard.charia@epfl.ch > 1001_collège > Visionneuse BIM

bernard.charia

Details du projet

1001_collège

gestion du projet

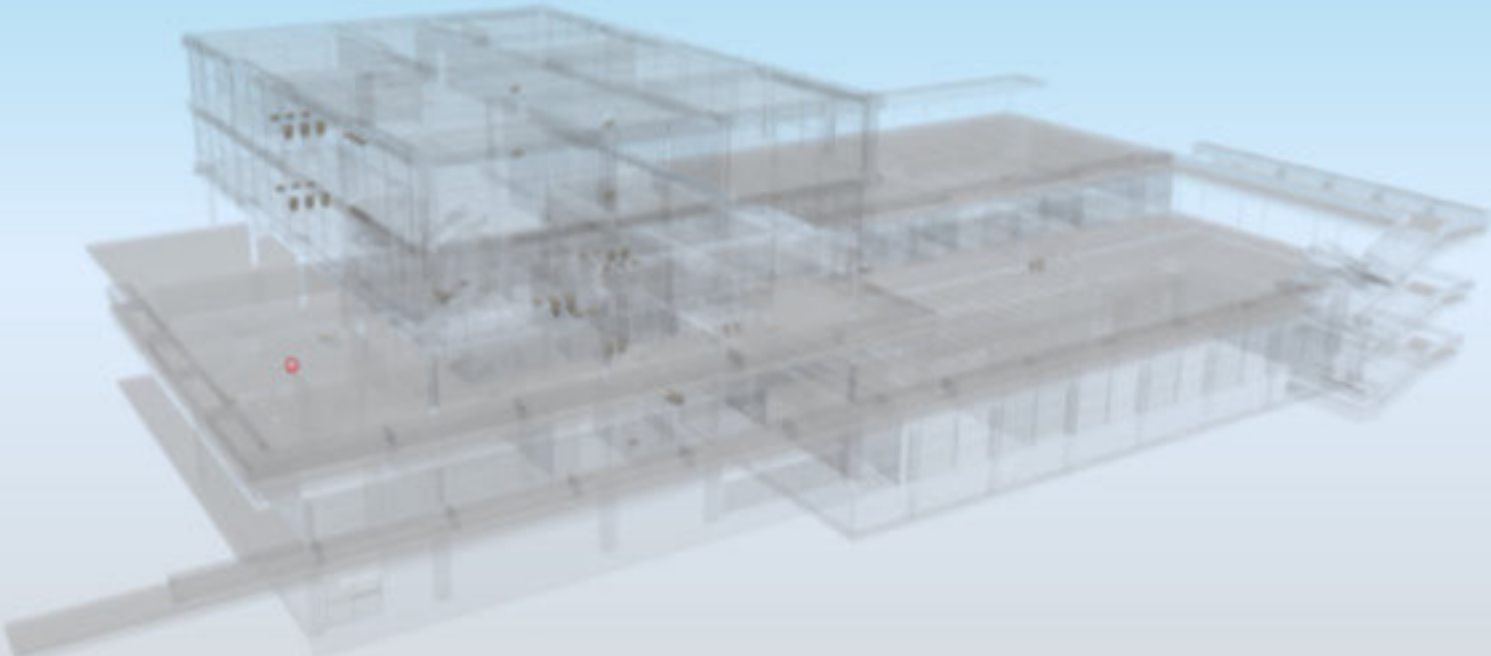
Collège des Bâtiments, Lausanne, Suisse CH-1015

Maquettes

- Projet circulation verticale
- 1001_x_collège
- 1001_x_collège_bas
- 1001_x_collège_at
- Bâtiment
- MEP
- Châssis gris acier
- Placard

Structure de bâtiment

- 1001_collège
- 1001_x_collège
- Projet circulation verticale
- 1001_x_collège_at
- Sûr
- Bâtiment
- Étage 5
- Étage 4
- Étage 3
- Escalier de secours
- Étage 1er
- Étage 2e
- Sous-sol
- 1001_x_collège_bas



Seuil Dispositif Mesure Cacher Couper Isolier Vue Révisionner

COMMUNICATION ENTRE ACTEURS : EXPORT BCF

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Sujets (1)

Nr	Type	Titre	Auteur	Personne responsable	Modifié	Date D'échéance	Priorité	Statut
1	Problème	Changer fenêtre	Bernard Cherix	Bernard Cherix	24/10/2018		Moyen	Courir

Changer fenêtre

Propriété de la tâche

1 object selected

Description:
Trouver produit équivalent avec vitrage et cadre roulant U&J.

Priorité: Moyen Statut: Courir

Personne responsable:
Bernard Cherix (Ecole polytechnique No.)

Email CC:
Liste séparée par des virgules

Date d'échéance:

Type:
✓ Problème
Remarque
Tâche
Rendez-vous
Document
Contact
Collision

Sauvegarder

Sujet Manipuler Mesurer Cacher Louper Ruler Vue Rotation

LISTE DES TÂCHES, EXPORT EN XLSX

The screenshot shows a Microsoft Excel spreadsheet titled "1605_cahiergaty-task-2". The interface is in French. The spreadsheet has 17 columns and 30 rows. The columns are labeled as follows:

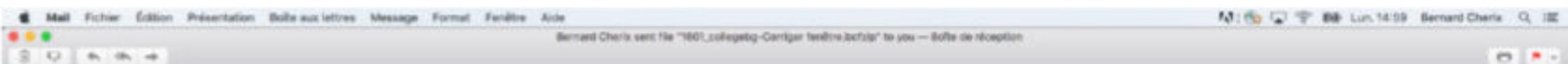
- No.
- Type
- Titre
- Description
- Auteur
- Responsable
- Tag
- Created
- Modified
- DueDate
- Priority
- Status
- Attachments
- Pts
- Comments
- Hyperlinks
- Link

The first row (row 1) contains the following data:

No.	Type	Titre	Description	Auteur	Responsable	Tag	Created	Modified	DueDate	Priority	Status	Attachments	Pts	Comments	Hyperlinks	Link
1	Problem	Confige l'interface	Trouver pourquoi les bulletins sont vides et cache l'option 12-5-7	Bernard Charbonnet	Bernard Charbonnet		24.10.2019	24.10.2019		Medium	Open		1			https://portal.bordeaux-wiki.fr

The spreadsheet is mostly empty, with a few cells highlighted in green. The status bar at the bottom shows "Ligne 1" and "Colonne 1".

RECEPTION PAR COURRIEL DE BCF



bimplus@xsystem.alipian.com
March Bernard Cheria
Bernard Cheria sent file "1801_collegatg-Corriger fenetre.bcf2g" to you

signature 18.03



Hello,

Bernard Cheria shared a file "1801_collegatg-Corriger fenetre.bcf2g" of project 1801_collegatg with you.

[Click here](#) to download the file from bim+

Yours sincerely,
Alipian bim+ team

At Alipian bim+ we value your feedback! Let us know about your experience, ideas for improvement, or just say hello via support@bimplus.net to help us improve Alipian bim+.

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Servant Cherix

Sujets (1)

Nr	Type	Titre	Auteur	Personne responsable	Modifié	Date d'échéance	Statut
1	Problème	Changer fenêtre	Bernard Cherix	Bernard Cherix	24/10/2018		En cours



Changer fenêtre

Propriétés de la tâche

1 objets sélectionnés

Description:

Trouver produit équivalent avec vitrage et cadre isolant U 0,7.

Précédent: Statut:

Moyen: Courir:

Personne responsable:

Bernard Cherix (École polytechnique fœd)

Email CC:

Cette colonne par des virgules.

Date d'échéance:

Type:

- ✓ Problème
- Remarque
- Tâche
- Rendez-vous
- Document
- Contact
- Collaboration

Se connecter

Carte, Modélisation, Métrique, Calcul, Logiciel, Vidéo, Réalité virtuelle