

# A360 - Compact Platform for Collaboration in BIM Projects

Biswaroop Todi

Vice President, Pinnacle Infotech, Inc.

Bimal Kumar Patwari

President, Pinnacle Infotech, Inc

Bryce Finnerty, PE, PMP, PSM

CEO and Founder of HingePoint

Twitter: @brycefinnerty or @hingepointway







Client calls HingePoint about problem with our work







Custom doors are too small, over \$50,000 wasted





HingePoint meets general contractor to determine problem

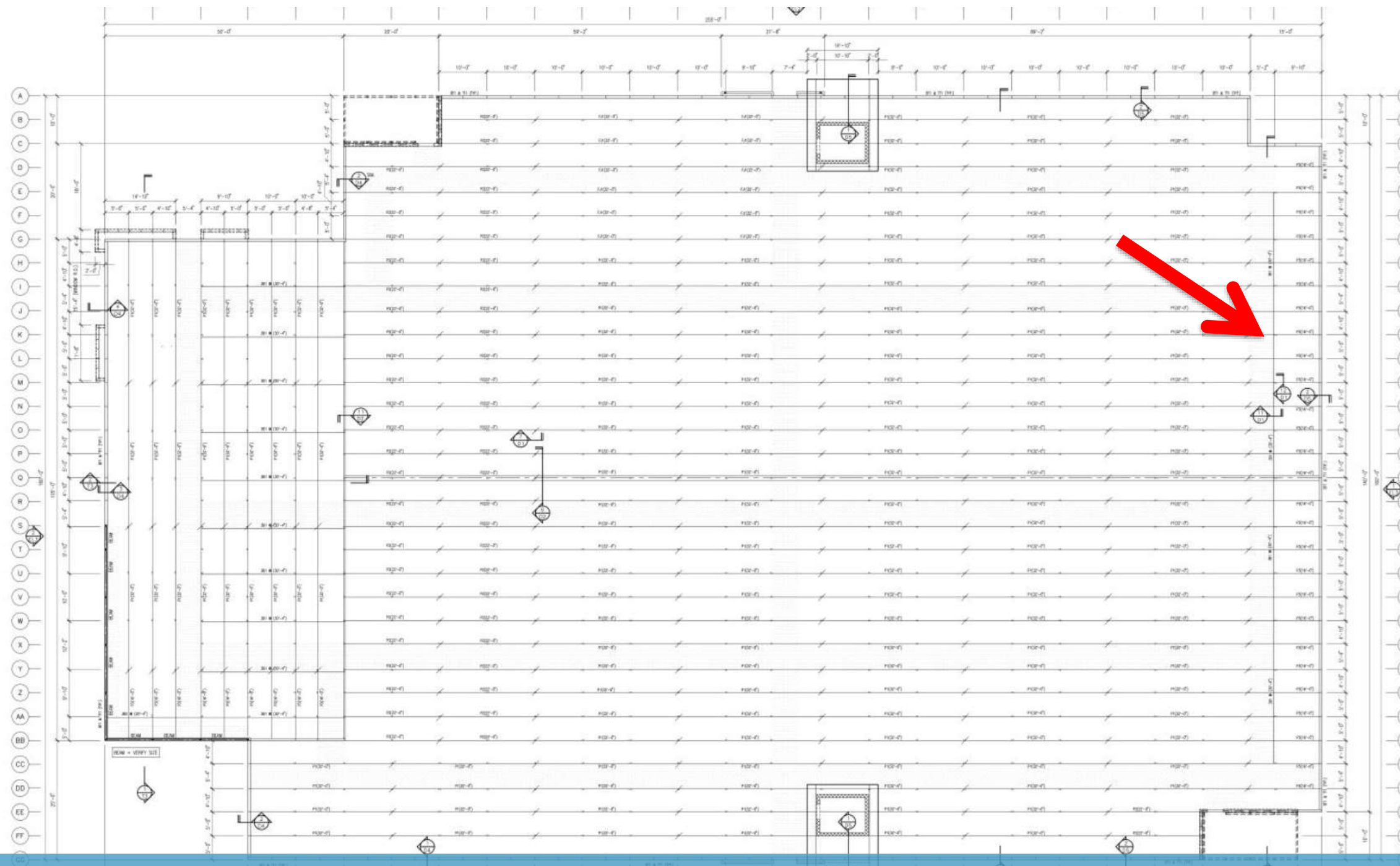
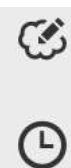




GC says BIM model design caused problem







Drawings show beam going over supporting beams

ROOF FRAMING NOTES, SEE P. 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

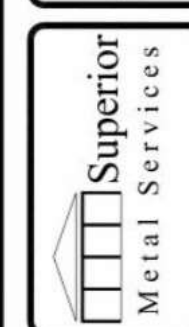


ROOF FRAMING PLAN

OPTIONAL NOTES:  
1. ALL DIMENSIONS SHOWN ON THESE PLANS ARE TO THE CENTERLINE UNLESS OTHERWISE NOTED.  
2. ALL DIMENSIONS SHOWN ON THESE PLANS ARE TO THE CENTERLINE UNLESS OTHERWISE NOTED.

ROOF FRAMING SCHEDULE

1. ALL DIMENSIONS SHOWN ON THESE PLANS ARE TO THE CENTERLINE UNLESS OTHERWISE NOTED.



NEW STORAGE FACILITY FOR  
PROMESA JUDSON SELF STORAGE  
12211 N. IH 35  
SAN ANTONIO, TEXAS 78233



Tutorial



AUTODESK UNIVERSITY 2016



# Doors – Right Side

14 24 23 Elevator Hoistway Opening

08 14 23.16 Interior Door - (FI) Typical (Flush) without Closer

08 34 19 Overhead Door - Roll-Up Garage Door

E

D

08 34 19 Overhead Door - Roll-Up Door [14242319]

08 34 19 Overhead Door - Roll-Up Door [14242327]

08 34 19 Overhead Door - Roll-Up Door [14242334]

08 34 19 Overhead Door - Roll-Up Door [14242341]

08 34 19 Overhead Door - Roll-Up Door [14242352]

08 34 19 Overhead Door - Roll-Up Door [14242359]

08 34 19 Overhead Door - Roll-Up Door [14242366]

08 34 19 Overhead Door - Roll-Up Door [14242462]

08 34 19 Overhead Door - Roll-Up Door [14242479]

Materials and Finishes

Frame Material

Finish

Finish No. (Frame)305

Dimensions

Curtain31

Width

SIZE

ELEVATION

Thickness0.146'

Rough Width3.135'

Half Width4.333'

Height8.000'

Trim Projection Ext0.083'

Trim Projection Int0.052'

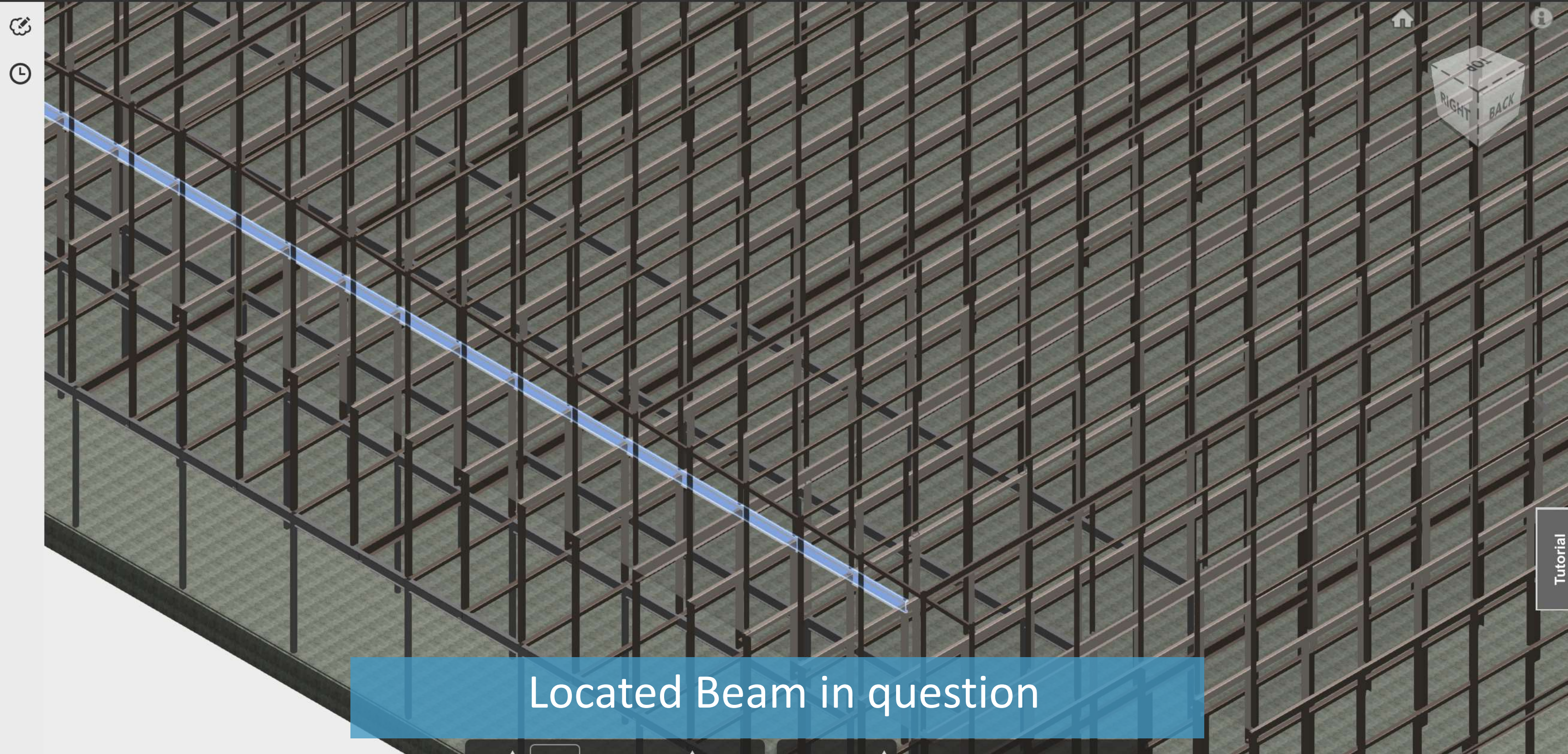
Trim Width0.167'

Rough Height

Identity Data

Look at BIM model on my smartphone





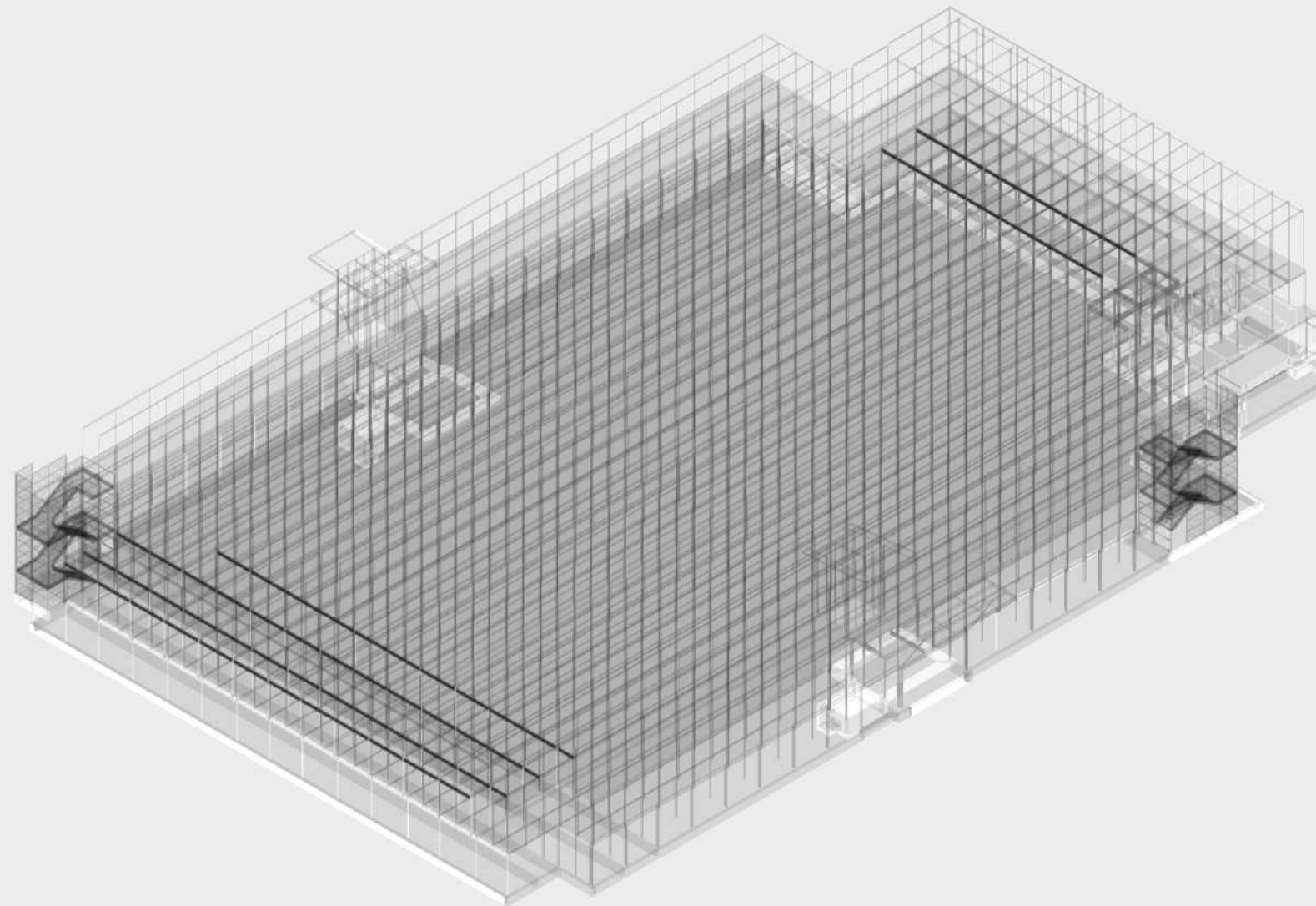
Located Beam in question



**BROWSER**

Filter by name

- Model
  - Lines
  - Structural Columns
  - Structural Framing
    - 05 12 23 Wide Flange I-Beam
      - W 14" x 26"
      - W 10" x 15"
      - W 10" x 19"**
    - 05 41 00 Light Gauge-Zees
    - 05 41 00 Light Gauge-Cees
    - 03 30 00 Concrete Rectangular Beam
    - 05 41 00 Light Gauge Eave Strut 6 x 4
    - 05 12 23 HSS-Hollow Structural Section
    - 03 30 00 Concrete Beam Per Detail 5
    - 05 12 23 HSS-Round Structural Tubing
    - 03 30 00 Concrete Beam Per Detail 2
    - 05 12 23 HSS-Beam - Rectangular (S
    - Tower)
    - HSS-Hollow Structural Section



**W 10" X 19"**

Structural

W 19.000

A 0.039' <sup>2</sup>

Section Shape Not Defined

Dimensions

bf 0.335'

d 0.850'

k 0.078'

k2 0.045'

tf 0.033'

tw 0.021'

Identity Data

Assembly Code B10

Type Image

Keynote

Model

Manufacturer

Type Comments

Look at what BIM model says about beam





## BROWSER



Filter by name

### Model

#### Lines

#### Structural Columns

#### Structural Framing

#### 05 12 23 Wide Flange I-Beam

W 14" x 26"

W 10" x 15"

W 10" x 19"

05 41 00 Light Gauge-Zees

05 41 00 Light Gauge-Cees

03 30 00 Concrete Rectangular Beam

05 41 00 Light Gauge Eave Strut 6 x 4

05 12 23 HSS-Hollow Structural Section

03 30 00 Concrete Beam Per Detail 5

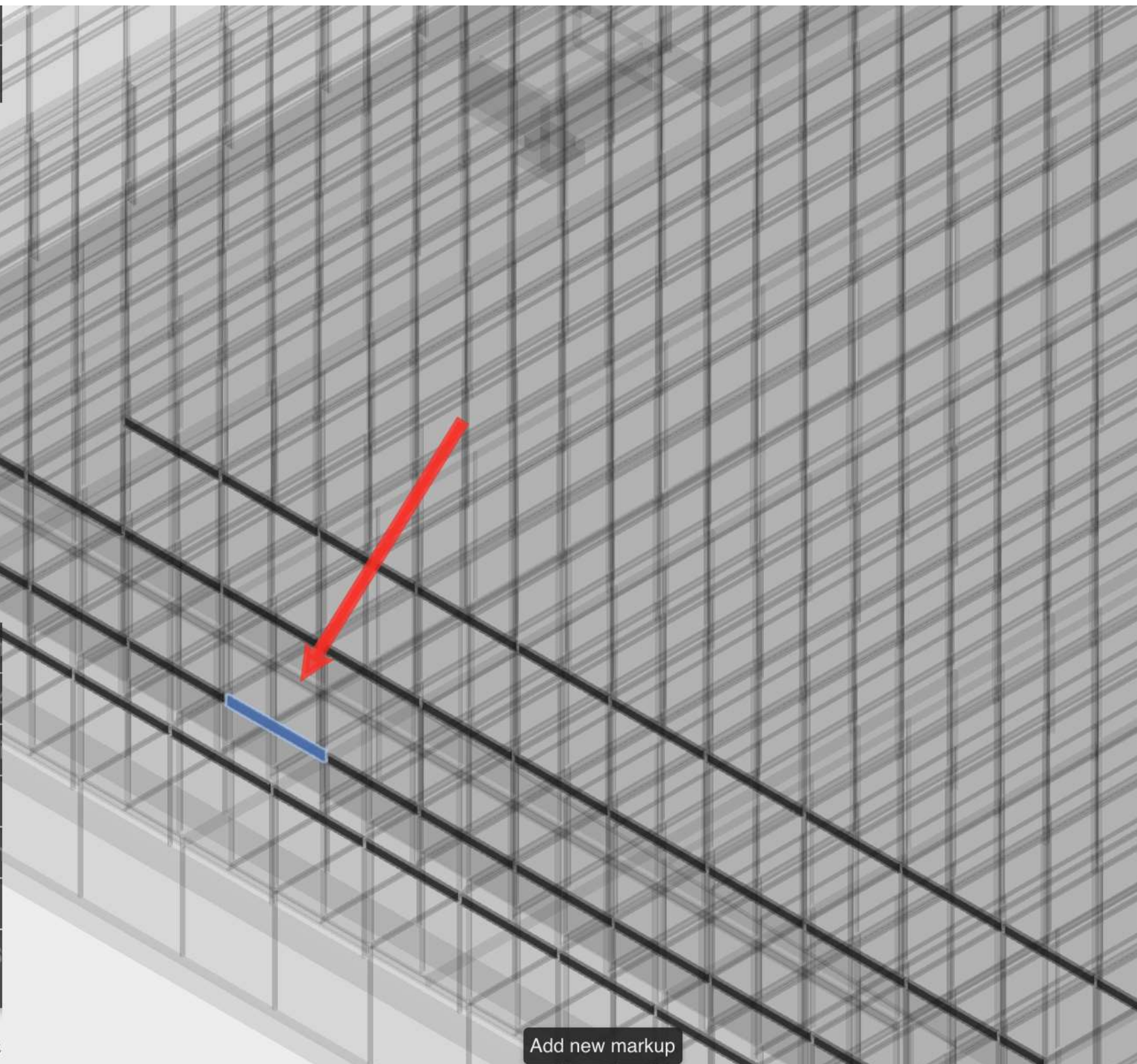
05 12 23 HSS-Round Structural Tubing

03 30 00 Concrete Beam Per Detail 2

05 12 23 HSS-Beam - Rectangular (S  
Tower)

HSS-Hollow Structural Section

//



Add new markup

## W 10" X 19"



### Structural

W 19.000

A 0.039' <sup>2</sup>

Section Shape Not Defined

### Dimensions

bf 0.335'

d 0.850'

k 0.078'

k2 0.045'

tf 0.033'

tw 0.021'

### Identity Data

Assembly Code B10

Type Image

Keynote

Model

Manufacturer

Type  
Comments

Tutorial







MODEL

Identity Data

Organization Name

Organization Description

Building Name

Author

Energy Analysis

Energy Settings

Other

Project Issue Date

Issue Date

Project Status

Preliminary

Client Name

To Be Determined

Project Address

Enter address here

Project Name

Template - ESS ProtoModel

Project Number

PSS.0001

Discover drawings don't match BIM model





# Here's what we're going to talk about

- The Phases of Promesa and BIM
  - Development
  - Design
  - Construction





# Development

- Creating a Business Model





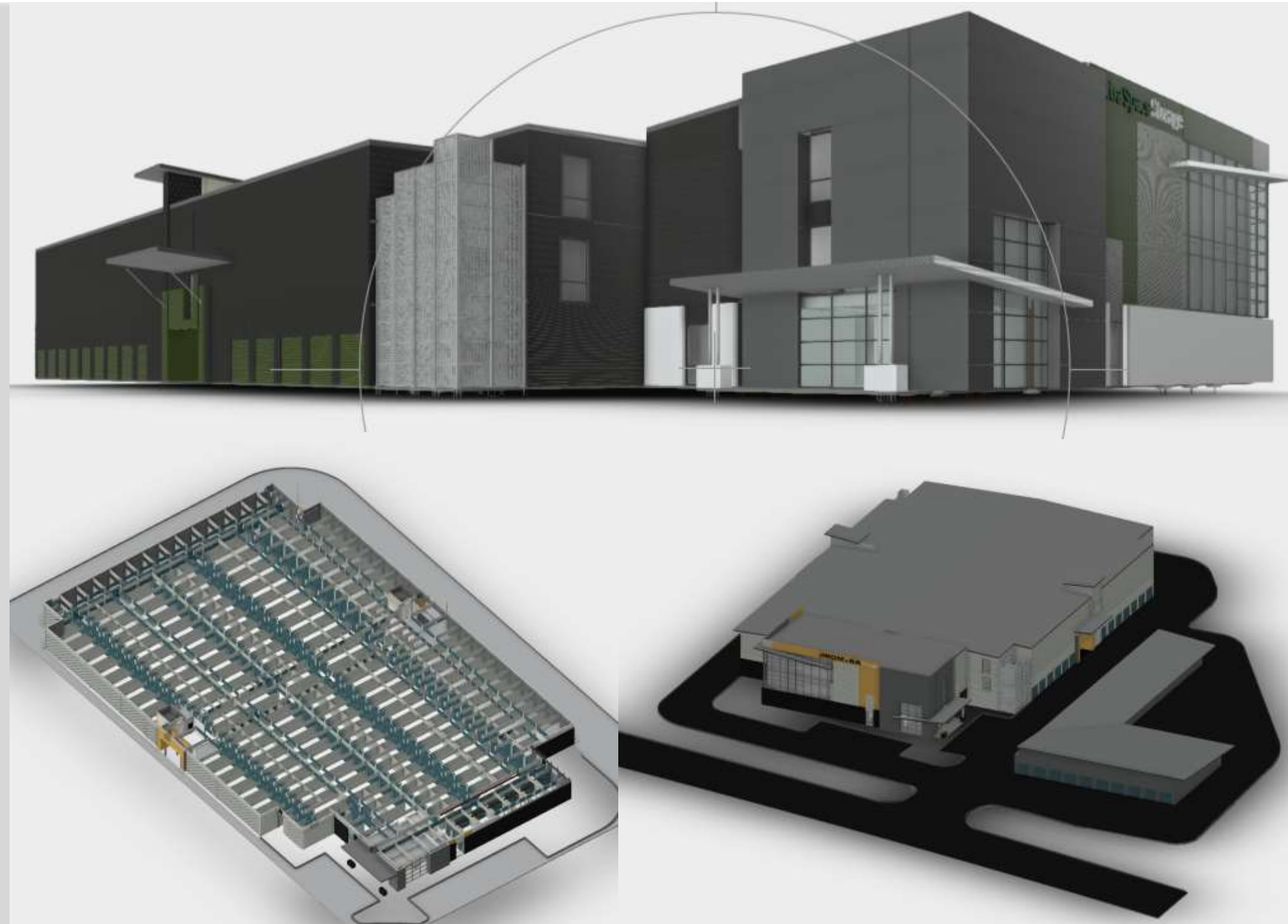
# Scaling Promesa





# Optimized Pro Forma with each Iterations

- 14 iterations
- Building Envelope
- Unit Mix and Net Rentable





# Shell Of Building – Rapid Optimization Rapid Reports

**Old School**  
Proforma on spreadsheet  
Reports Manual

**New School**  
Proforma is model  
Reports Automatic

- Pro Forma reports
- Custom plugin to Revit
- Business to scale, to create the Franchise Prototype not for 1 but 100's, 1000's.

| Bill of Materials - Gross Floor Plate Properties  |  |       |           |          |                     |
|---|--|-------|-----------|----------|---------------------|
| Gross Floor Plate Properties By Level             |  |       |           |          |                     |
| Accessory Building - A.101 Ground Floor           |  |       |           |          |                     |
| Level   | Name                                     | Area  | Perimeter | Comments | Area Type           |
| Accessory Building - A.101 Ground Floor           | Gross Building Area - Accessory Building | 9893  | 565       |          | Gross Building Area |
| Accessory Building - A.101 Ground Floor Subtotals |  | 9893  |           |          |                     |
| Ground Floor - A.101 Ground Floor                 |  |       |           |          |                     |
| Level   | Name                                     | Area  | Perimeter | Comments | Area Type           |
| Ground Floor - A.101 Ground Floor                 | Gross Building Area - Ground Floor       | 37178 | 874       |          | Gross Building Area |
| Ground Floor - A.101 Ground Floor Subtotals       |  | 37178 |           |          |                     |
| Second Floor - A.102 Second Floor                 |  |       |           |          |                     |
| Level   | Name                                     | Area  | Perimeter | Comments | Area Type           |
| Second Floor - A.102 Second Floor                 | Gross Building Area - Second Floor       | 37296 | 849       |          | Gross Building Area |
| Second Floor - A.102 Second Floor Subtotals       |  | 37296 |           |          |                     |

| Level                             | Unit Type          | Name    | Count | Area  | Unit Access |
|-----------------------------------|--------------------|---------|-------|-------|-------------|
| Ground Floor - A.101 Ground Floor | Climate Controlled | 10 x 10 | 37    | 3692  | Interior    |
| Ground Floor - A.101 Ground Floor | Climate Controlled | 10 x 15 | 13    | 1931  | Interior    |
| Ground Floor - A.101 Ground Floor | Climate Controlled | 10 x 20 | 44    | 8832  | Interior    |
| Ground Floor - A.101 Ground Floor | Climate Controlled | 10 x 30 | 16    | 4749  | Interior    |
| Ground Floor - A.101 Ground Floor | Climate Controlled | 10 x 5  | 27    | 1296  | Interior    |
| Ground Floor - A.101 Ground Floor | Climate Controlled | 5 x 10  | 3     | 191   | Interior    |
| Ground Floor - A.101 Ground Floor | Climate Controlled | 5 x 5   | 13    | 318   | Interior    |
| Climate Controlled Subtotals      |                    |         | 153   | 21009 |             |

| Net Rentable                            |                     |                    |                   |
|---|---------------------|--------------------|-------------------|
| Floor                                   | Gross Area of Floor | Unit Area of Floor | Net Rentable Area |
| Accessory Building - A.101 Ground Floor | 9893                | 9507               | 0.96              |
| Ground Floor - A.101 Ground Floor       | 37178               | 29055              | 0.78              |
| Second Floor - A.102 Second Floor       | 37296               | 26706              | 0.72              |
| Third Floor - A.103 Third Floor         | 37299               | 26976              | 0.72              |
| Total Net Rentable                      | 121666              | 92244              | 0.76              |



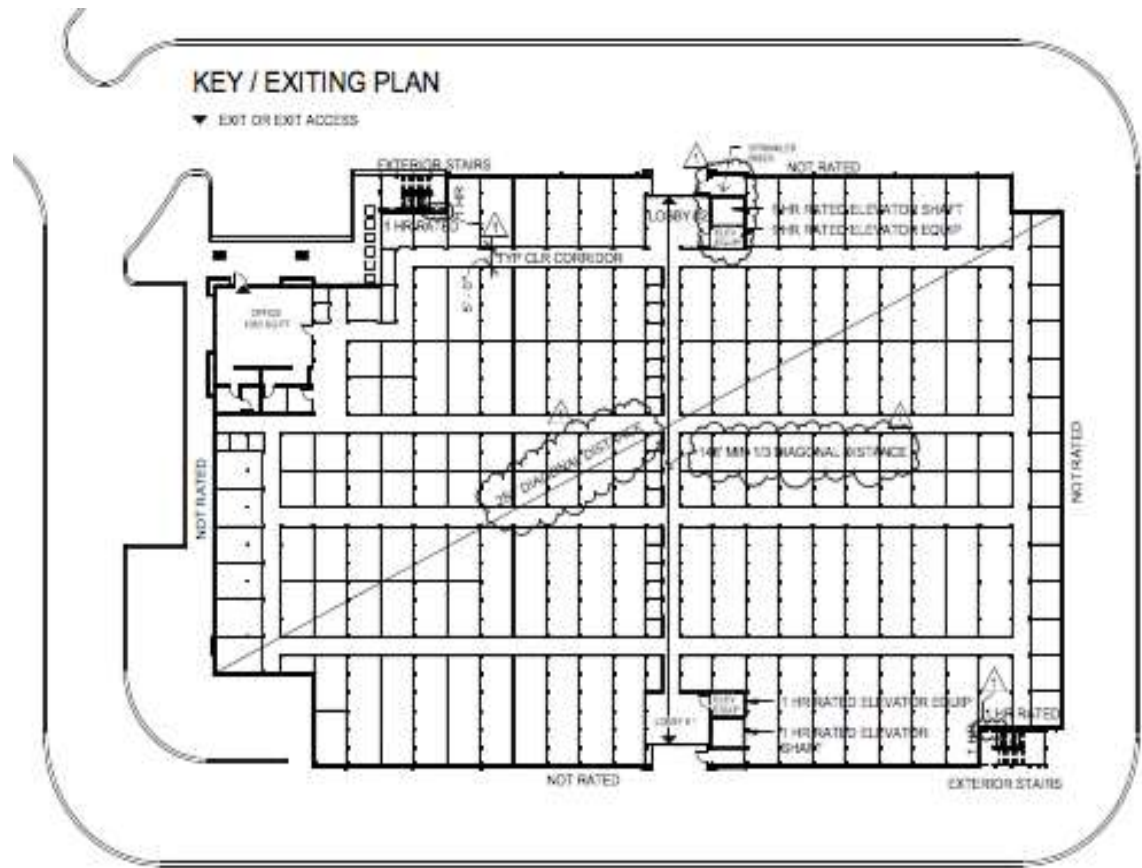


A 3D architectural rendering of a modern, multi-story building. The building features a light-colored upper section with large glass windows and a darker, textured lower section. The name 'PROMESA Storage' is prominently displayed in large, bold, black letters on the upper facade. A semi-transparent white box is overlaid on the left side of the image, containing the text 'Design Phase' and a bullet point. The sky is a clear, bright blue.

# Design Phase

- Submitting Construction Documents

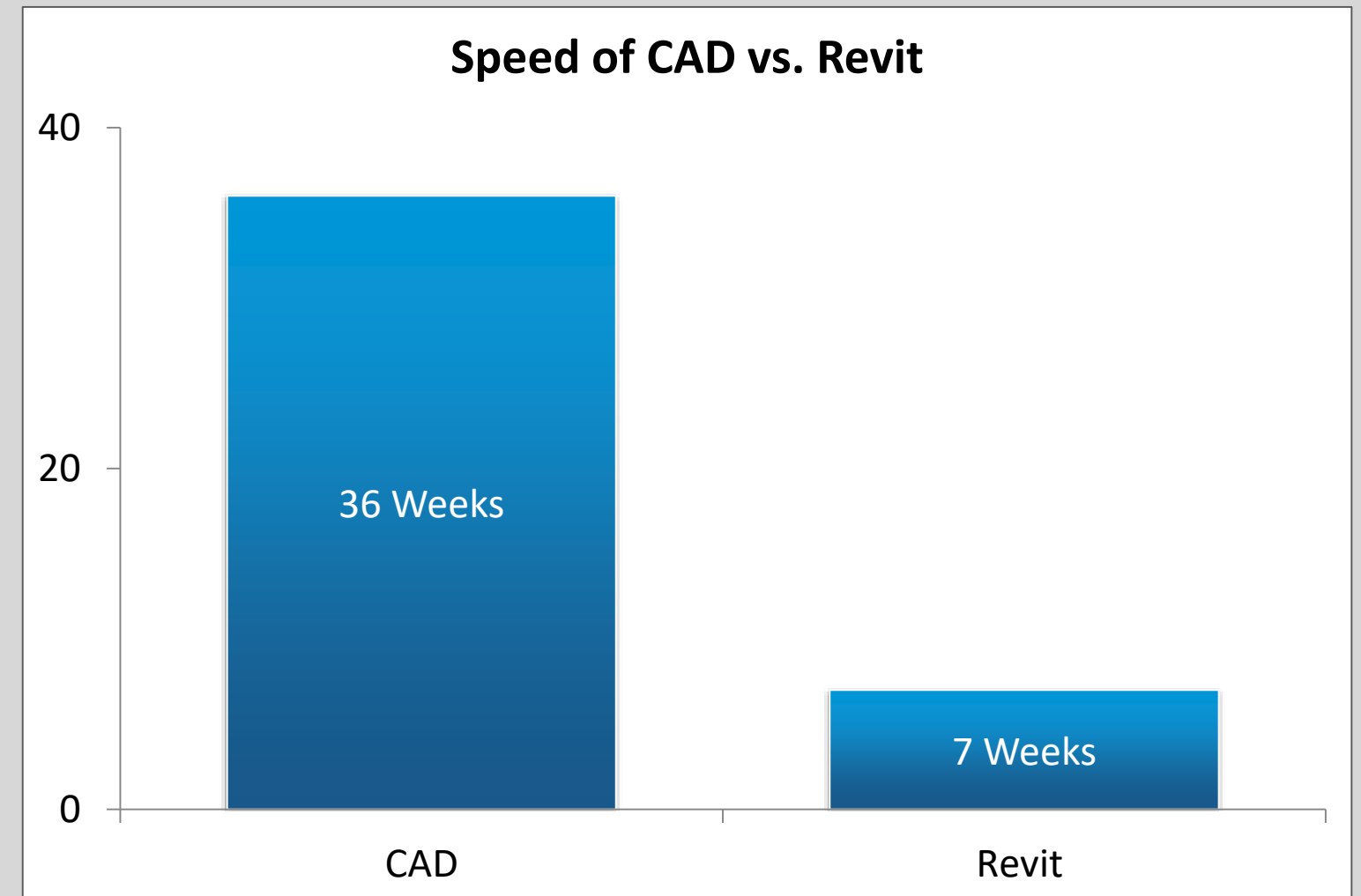






# Compare Speed of CAD to Revit drawings

- **Old School**
  - 9 plus months, and drawings weren't even accurate for construction.
  - Didn't even have a grid!
  - No renderings, no seeing how things work
- **New School**
  - Revit – July 17<sup>th</sup>, drawings submitted Sept 9<sup>th</sup> – 7 weeks, Arch, Structural, MEP, Civil partial
  - All reviews
  - revisions,
  - 3D BIM and 100 sheet package, clash detection, issues resolution.







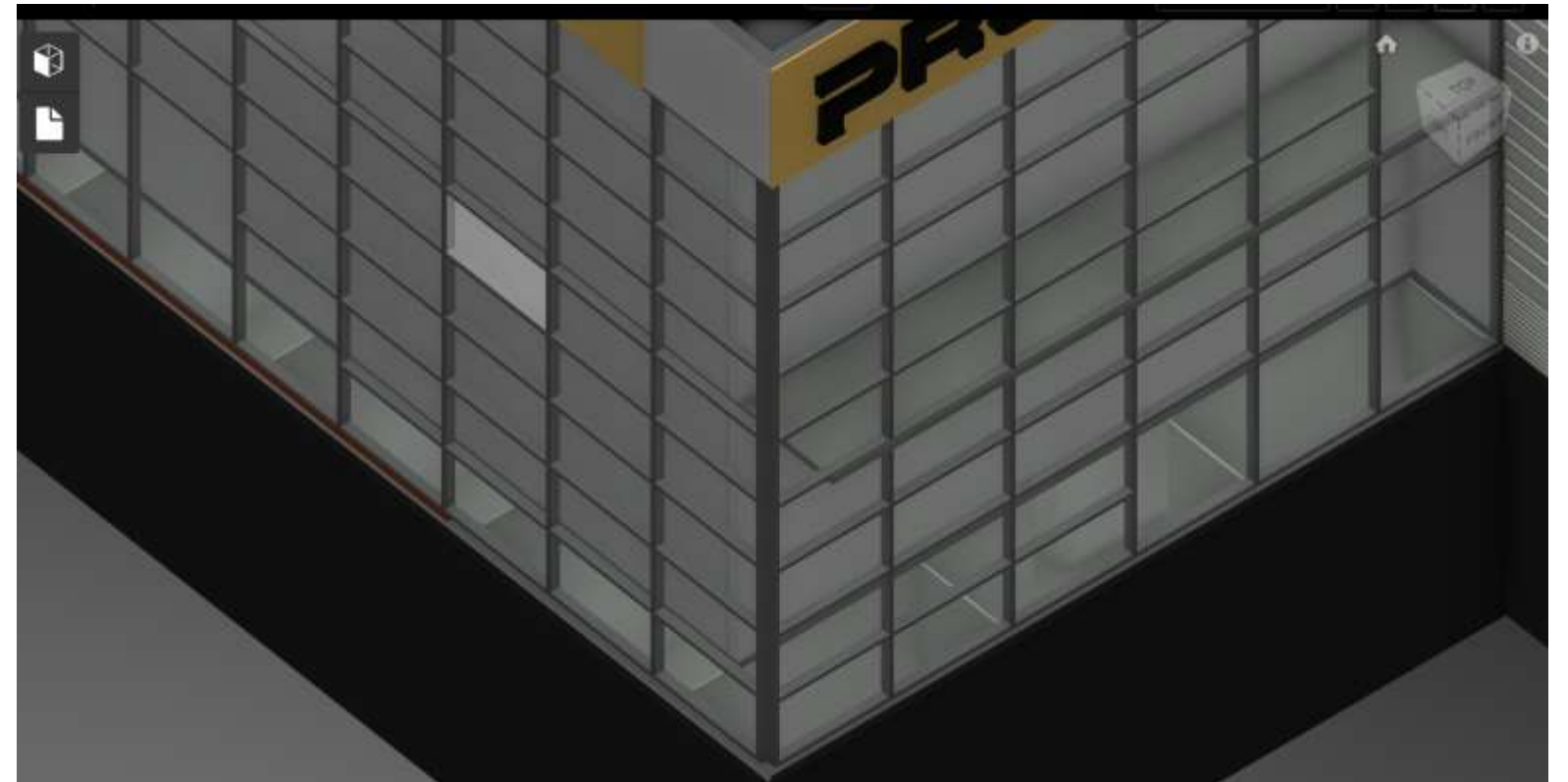
# Construction Phase

- Change Orders
- Construction Verification



# Saved \$500,000 in Change Orders

- We changed the Curtain Wall to Store Front
- Saved \$500,000
- Redraw BIM and drawings in 1 week





# What happens to your BIM model when an investor leaves?

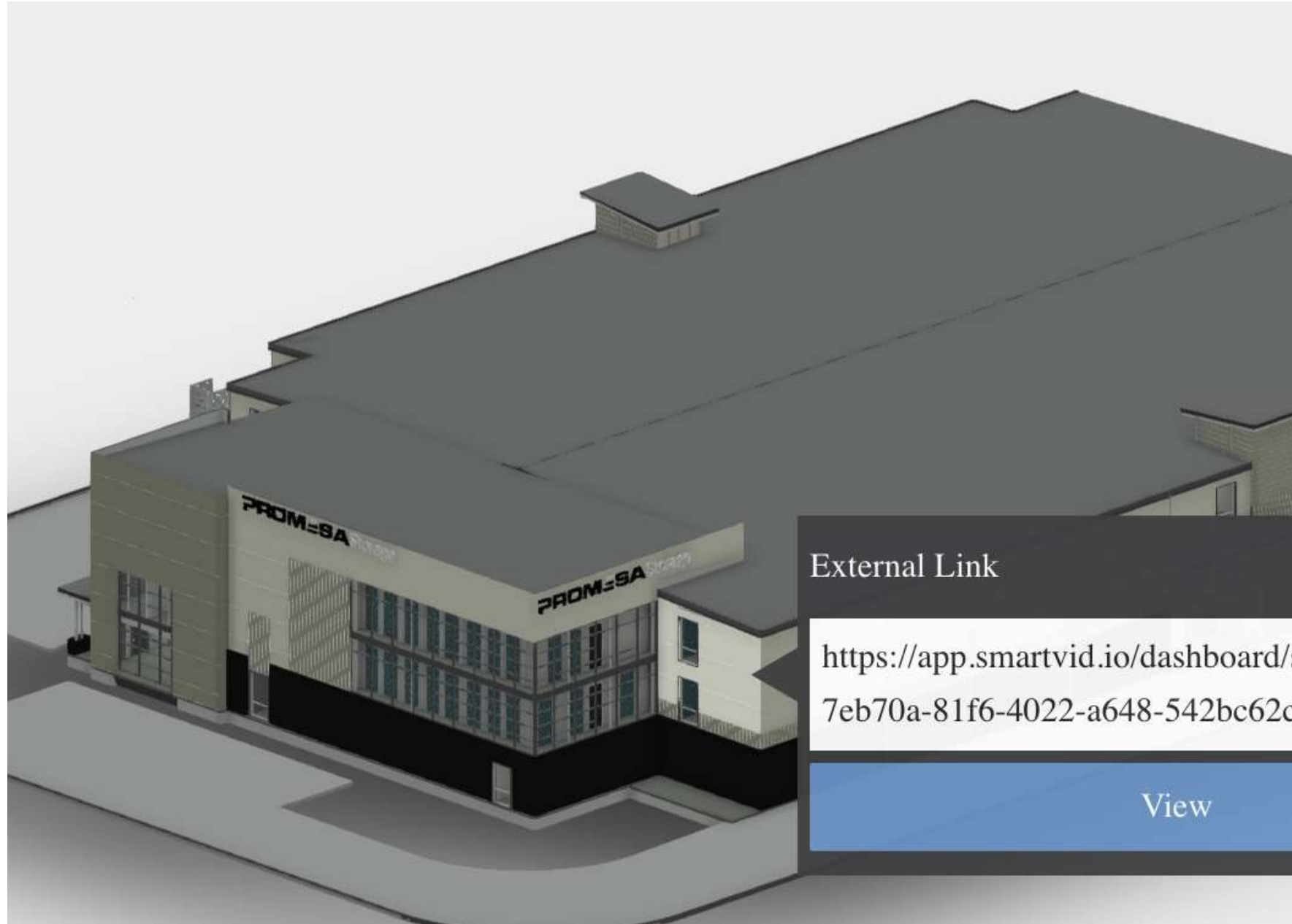








# Construction Verification



External Link

<https://app.smartvid.io/dashboard/shared/search/d07eb70a-81f6-4022-a648-542bc62c3c45>

View







# Comparison of BIM Stages

The differences  
in CAD, Revit  
and BIM

## BIM Characteristics



Format of Your Data



Automate Tasks -  
Steps to perform work  
across design &  
engineering roles



Integration - Combine  
systems/software  
to exchange data



Collaboration -  
How internal &  
external teams  
work together



Paper - Procedures  
are dependent  
on paper

## Desktop CAD

Vector and 2D Drawings

Manual



Minimal



Minimal

Paper required for  
Inputs and Outputs

## Desktop Revit

3 Dimensional  
parametric models

Semi-automated

Cloud, Mobile

Many Possibilities

Digital &  
Print on Demand

## Building Information Modeling



3D models with  
subsystems



Fully Automated



Few Limitations



Limitless



Fully Digital



# Demo of A360 – Compact Platform

- Mobile – phone, tablets
- Computing – web, cloud
- 3D visualization of BIM data
- Drill Down into BIM data
- CD Sheets – Drawing Sheets in the palm of your hand
- Collaboration – mark ups, comments, issues



# Mobile - Download

- Mobile – phone, tablets
- Try for Free!

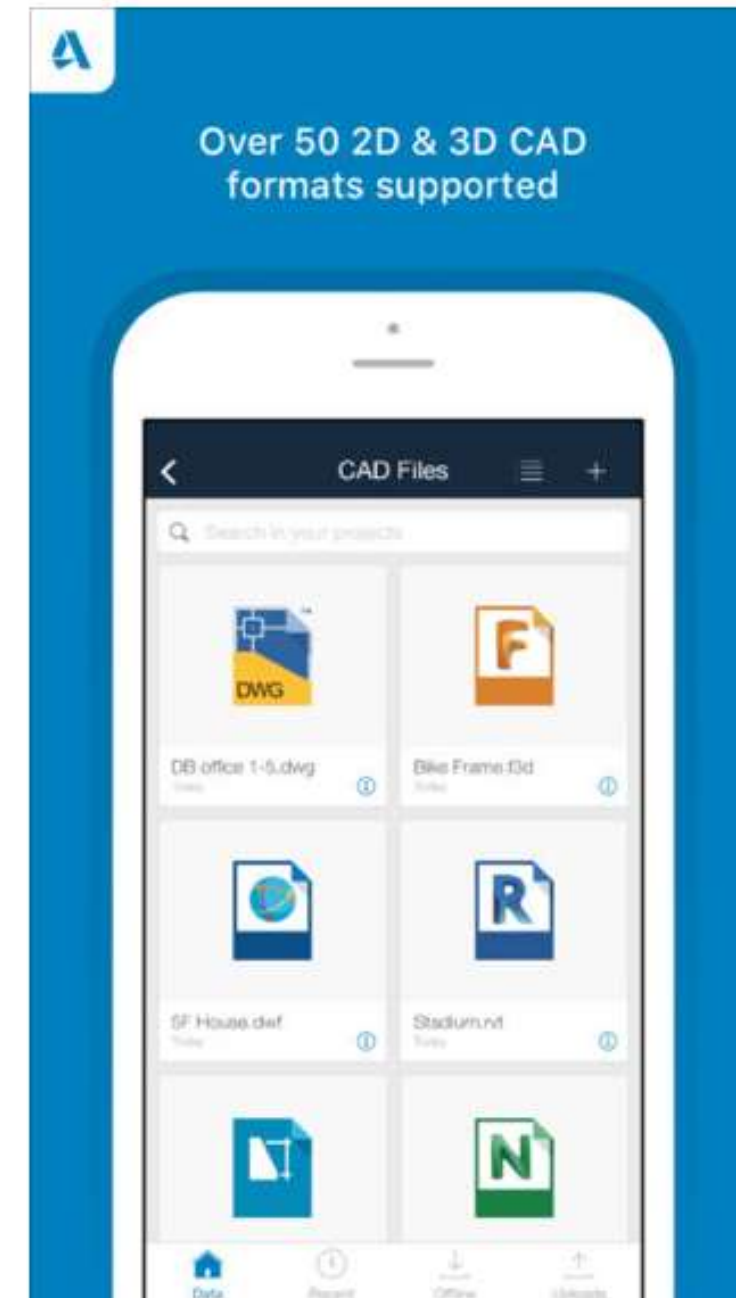
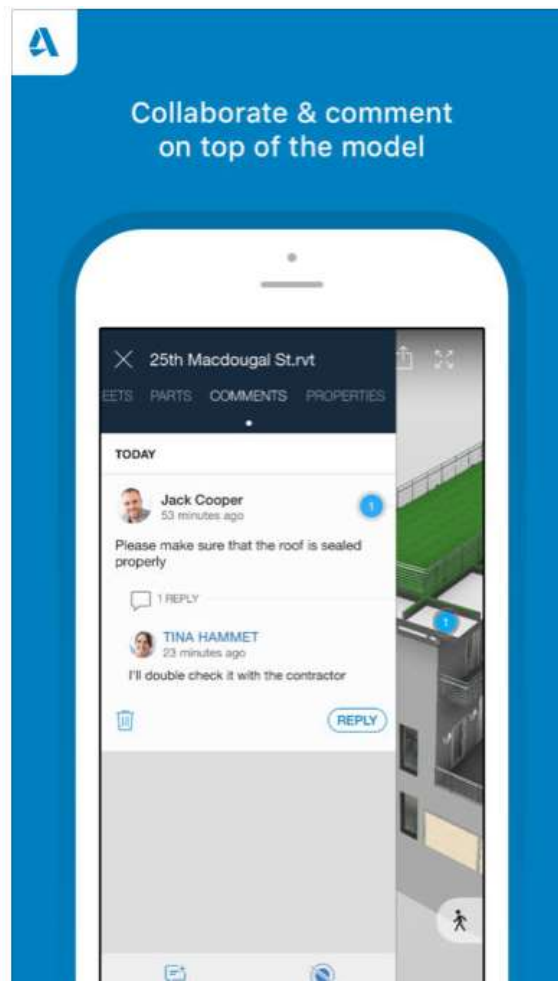


A360 - View, Share  
and Review Your 2D...

Autodesk Inc.

★★★★☆ (46)

+ OPEN



# Navigation - Folders

 Data

 Calendar

 Discussions



A360   
Promesa





Home > Promesa

Upload



New Folder




|  Name  | Owner           | Type   | Size | Last updated |
|---|-----------------|--------|------|--------------|
|  Wiki Pages  | Bryce Finnerty  | Folder |      |              |
|  082916 Model, all views, and sh...  | Nathan Bicknell | Folder |      | Oct 5, 2016  |
|  2016 Final Judson CDs V2  | Bryce Finnerty  | Folder |      | Feb 3, 2016  |
|  2016-09-23 Model, all views, and ...  | Nathan Bicknell | Folder |      | Oct 1, 2016  |
|  2016-10-5, Model, all views, shee...  | Nathan Bicknell | Folder |      | Oct 5, 2016  |
|  Archive   | Bryce Finnerty  | Folder |      | Sep 7, 2016  |



# Navigation – Team, Activities


Details


Activity



Promesa


4 SubFolders

 Follow

 Pin

PROJECT MEMBERS (6)


Invite



Bryce Finnerty


bryce.finnerty@gmail.com

Project Admin




Victor Mendiola

victor@promesainvestments.com




Ed Toro

ed.toro@hingepoint.com



Gus Ochotorena

gus@promesainvestments.com





Brendan Desjardins

brendan.desja...hingepoint.com

View and Manage Members


Details

Activity



joined

TX San Antonio (Judson Road) -Revit Model\_Mechanical.rvt



Judson Road


MECHANICAL & PLUMBING

Bryce Finnerty

uploaded

Oct 20, 2016

TX San Antonio (Judson Road) - Model with Structure Link Bound v2017 (Combined).rvt




Nathan Bicknell

uploaded

Oct 5, 2016

TX San Antonio (Judson Road) - Model with Structure Link Bound v2017 (Combined).rvt



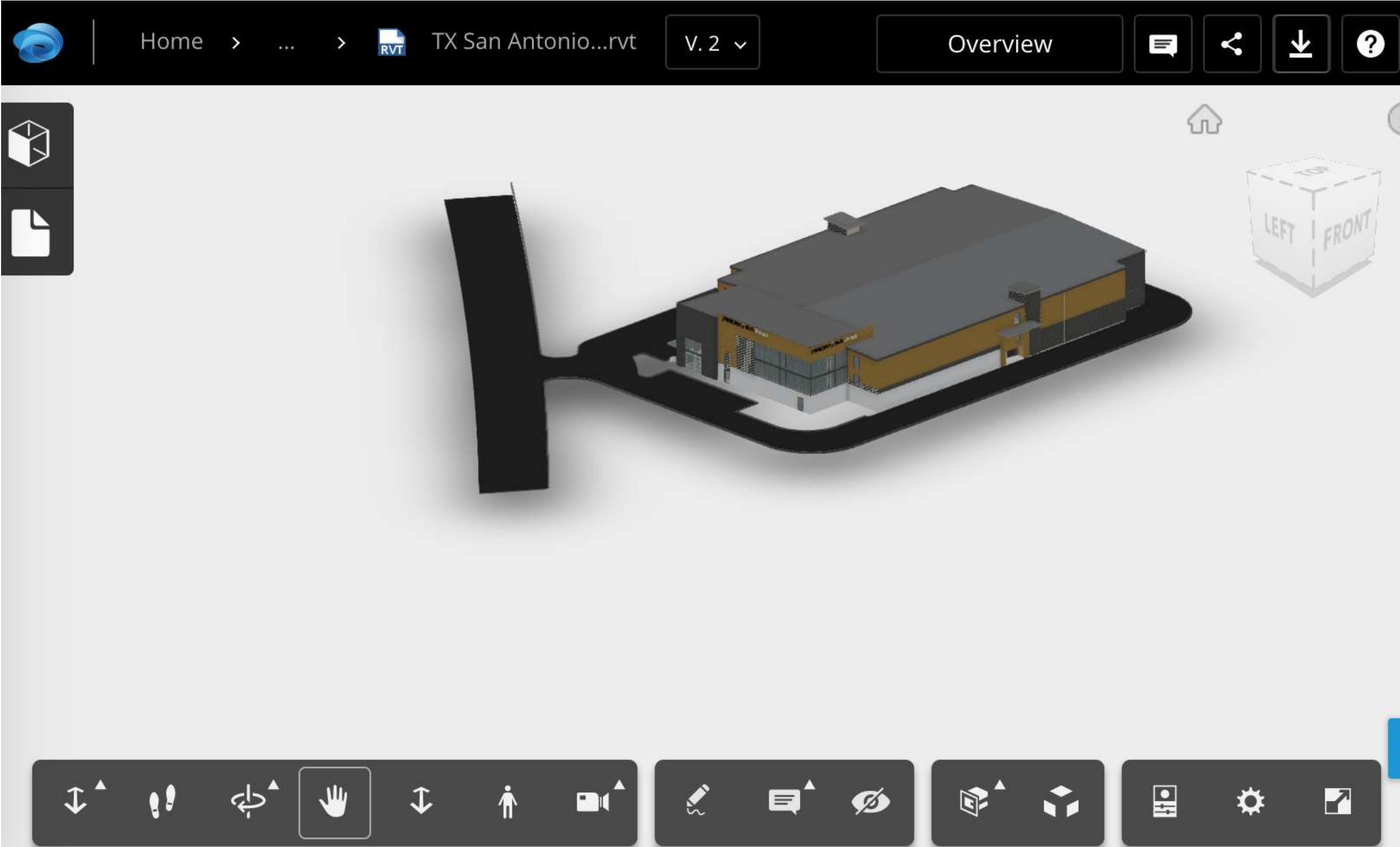
Nathan Bicknell

uploaded

Oct 1, 2016

AUTODESK UNIVERSITY 2016

# 3D Model Viewer





# Sheets Viewer – Elevations - Views

The screenshot displays the Autodesk Sheets Viewer application. The top navigation bar includes a Home button, a breadcrumb trail (Home > ... > TX San Antonio...rvt), a version dropdown (V. 2), and an Overview button. On the left, a sidebar shows a 3D model icon and a document icon. The main content area is divided into two panes. The left pane, titled 'SHEETS (26)', lists the following sheets:

- A.000 - COVER SHEET
- A.100 - Exterior Renderings
- A.900 - Preliminary Site Development Plan
- A1.0 - FIRE SEPARATION PLAN / CODE ANALYSIS
- A1.1 - FIRST FLOOR PLAN** (highlighted)
- Sheet: A1.1 - FIRST FLOOR PLAN
- A1.2 - 2ND FLOOR PLAN
- A1.3 - 3RD FLOOR PLAN
- A1.4 - ENLARGED PLAN
- A1.5 - ENLARGED PLAN ELEVATOR LOBBY
- A2.0 - DOOR, PARTITION SCHEDULE
- A2.1 - BUILDING SECTIONS/WDW SCHED

The right pane displays the selected sheet, A1.1 - FIRST FLOOR PLAN, which is a detailed architectural drawing of a building's first floor. The drawing shows a grid of rooms, corridors, and structural elements. The bottom of the interface features a toolbar with icons for navigation and viewing. On the far right, a vertical panel contains project information:

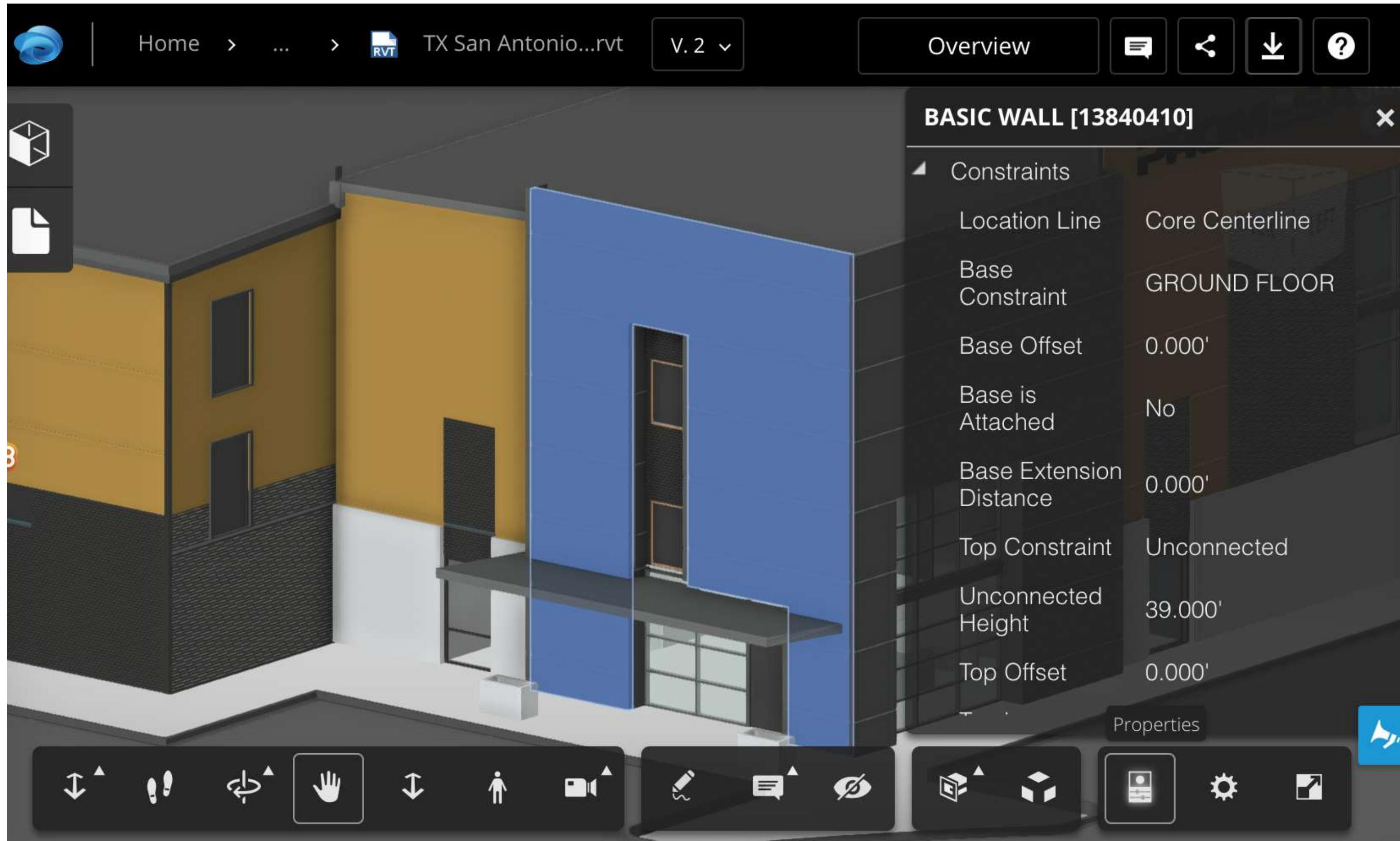
**PROMESA JUDSON SELF STORAGE**  
12211 N IH 35  
San Antonio, TX 78233  
790-Unit, Three-Story Storage Building

**PROMESA INVESTMENTS**  
Owned By:  
Promesa Investments, LLC

**Kaufman Design Group ARCHITECTURE**  
12371 E. LINCOLN CT.  
WICHITA, KS 67207  
(316) 618-0448  
(316) 618-0048 fax  
skaufman@cox.net

**SHEET TITLE**  
FIRST FLOOR PLAN  
**SHEET NUMBER**  
A1.1  
3 OF 24 SHEETS

# Zoom, Properties, Parameters

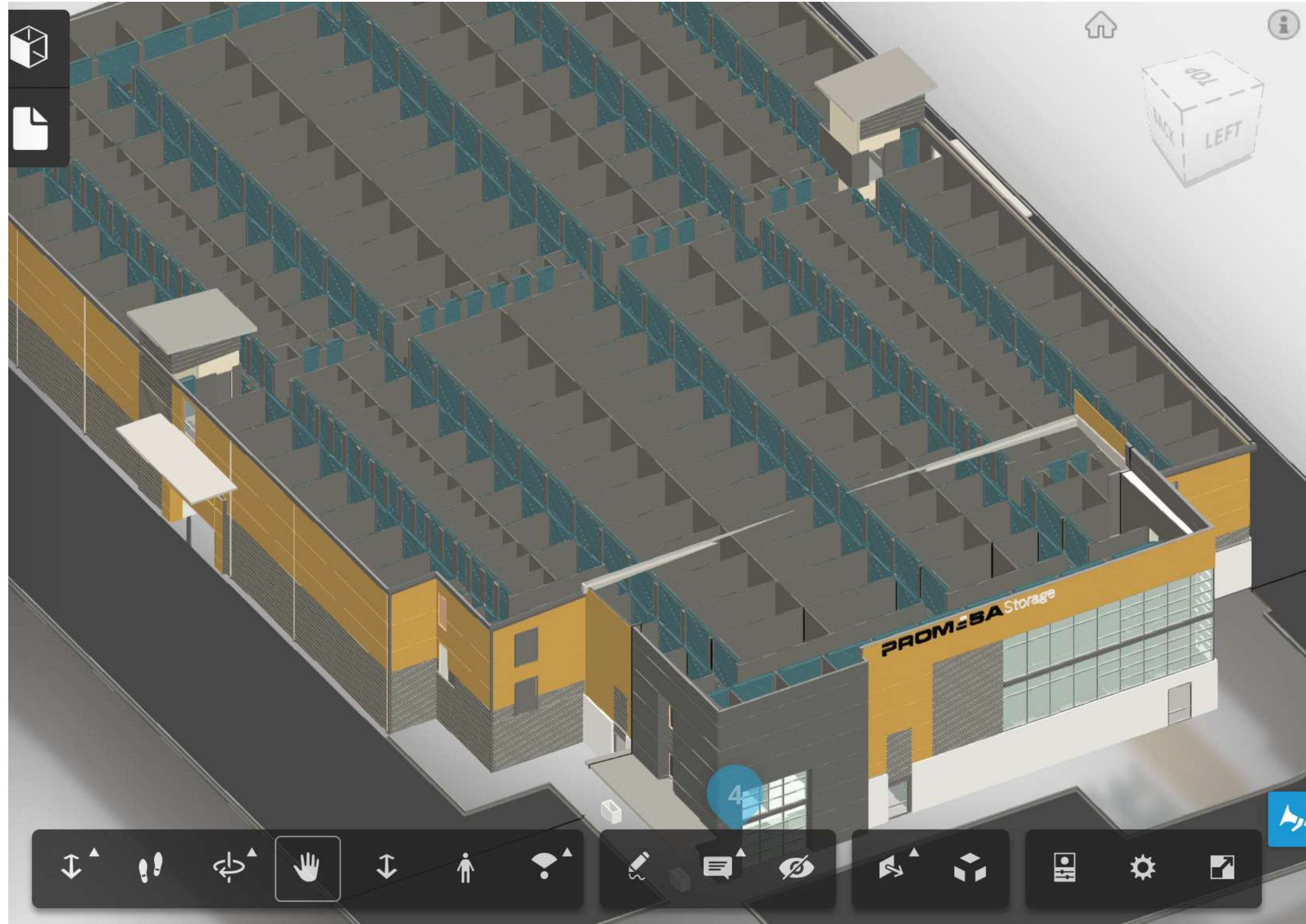




# Explode, Comment, Mark Up

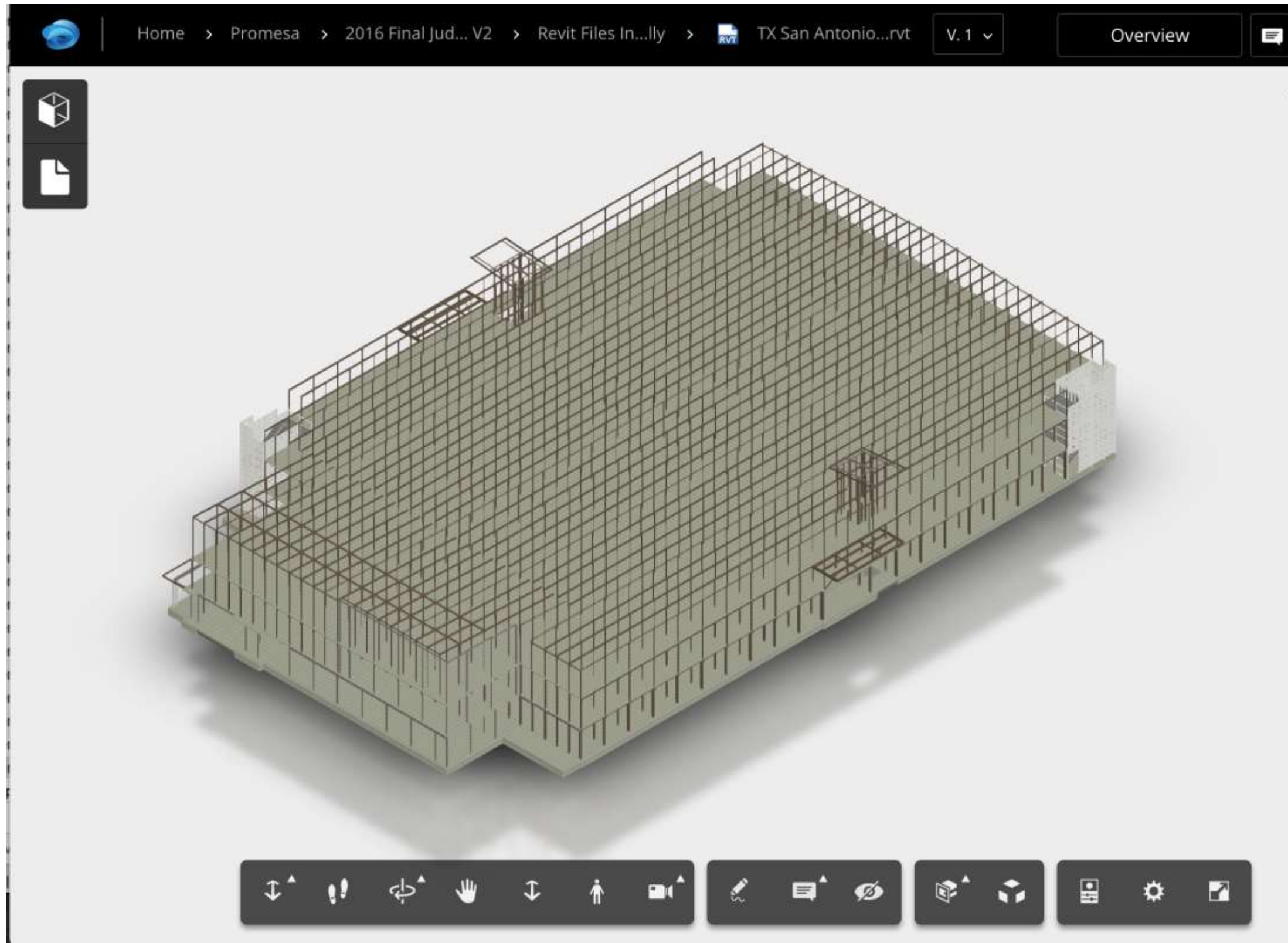


- Hide Roof,  
See Inside,  
Walk  
Through,  
Fly Throughs





# Structural Models – Steel Fabrication

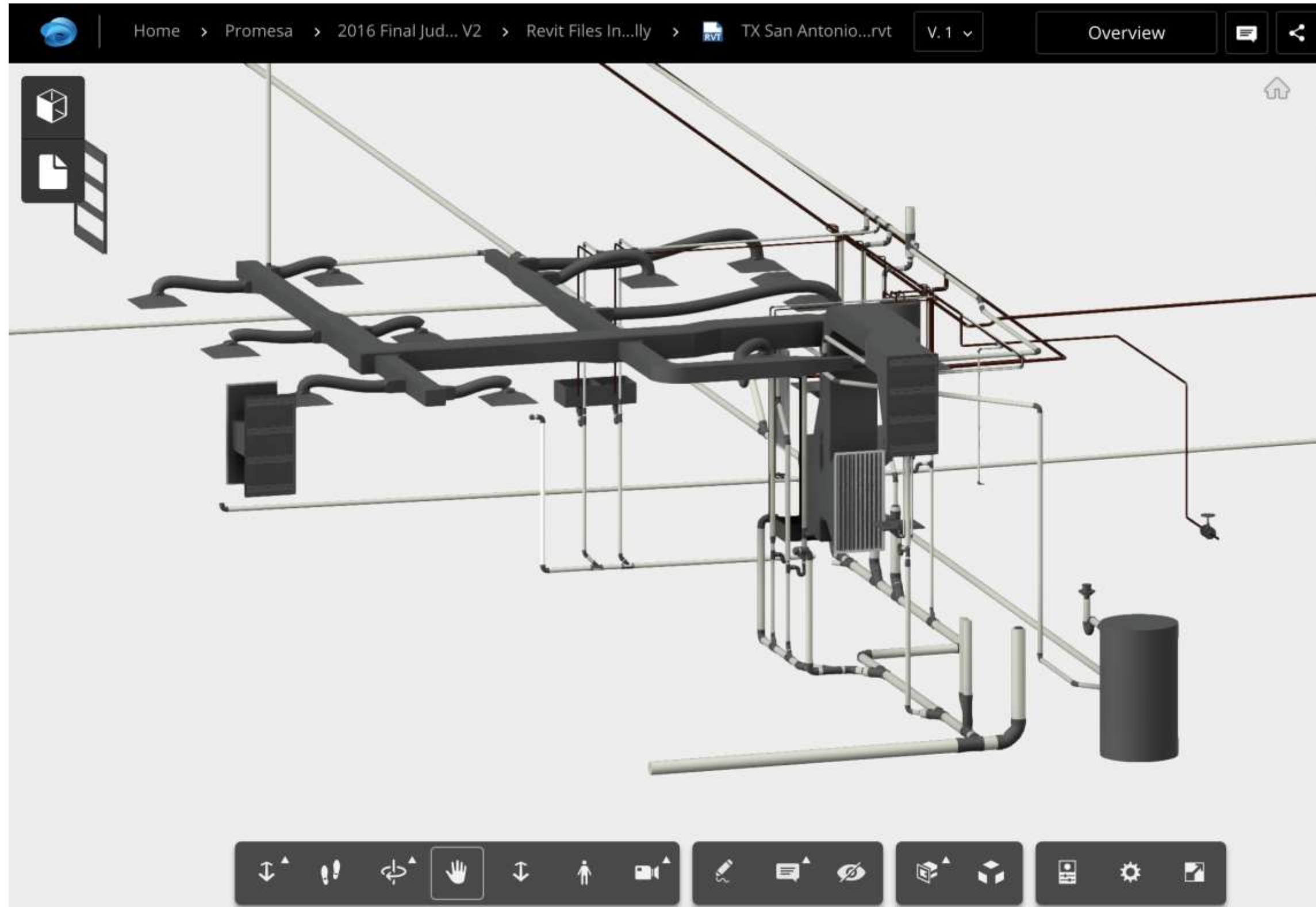


# Electrical Models





# Mechanical & Plumbing - CDs



# Call to Action

- Download our Roadmap (AU App/Site)
- Check out our 2017 Autodesk Industry Report
- Follow up with Pinnacle and HingePoint with questions



# Question and Answer

[Bryce.finnerty@hingepoint.com](mailto:Bryce.finnerty@hingepoint.com)

Twitter: @brycefinnerty

Biswaroop Todi

Email: [brtodi@pinnaclecad.com](mailto:brtodi@pinnaclecad.com)

Bimal Kumar Patwari



