BEYOND SWIPING RIGHT
MAKING MATCHES THAT LAST
FROM DESIGN TO MANUFACTURING

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WHAT’S ATTRACTIVE? | FIRST IMPRESSIONS

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS

LOOK
Slide right to like someone

Match
If they like you it’s a match

Chat
Start talking to see where it leads

Say something nice! SEND
WHAT'S ATTRACTIVE? | LET'S PLAY THE PHIELD

[Image 1]: https://www.netflix.com/title/80996601

[Image 2]: https://www.digitaltrends.com/mobile/best-dating-apps/

[Image 3]: https://www.someecards.com/usercards/viewcard/6vJ0wvNh2DokhZ2Fz21YyKcPkl7l9e/
PROJECT DEVELOPMENT | YOUR PROFILE MAKEOVER

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION TYING THE KNOT | QUESTIONS

LOCATION

CLIMATE?
DELIVERY RADIUS?
INSTALL RADIUS?
LOCAL LABOR?
DELIVERY?
BARRIERS TO ENTRY?

MATERIALS

PH WINDOWS?
HEALTHY / EPDs?
FSC LUMBER?
VAPOR OPEN AVB/R?
SMART AIR BARRIERS?
CARBON CREDITS?
LOCALLY SOURCED?

SERVICES

INTEGRATED MODELING?
IN-HOUSE ENGINEERING?
ARTIGHT CONSTRUCTION?
PRE-INSTALLED WINDOWS?
ON-SITE INSTALL?
ON-SITE TRAINING?
ALL ELECTRIC FACILITY?

SCHEDULE

CONTRACT PRICING?
DESIGN FREEZE DATE?
WINDOW ORDER DATE?
DELIVERY DATES?
PROJECT CLOSEOUT?
WARRANTIES?
PENALTIES FOR DELAYS?
INTEGRATED MODELING?
IN-HOUSE ENGINEERING?
AIRTIGHT CONSTRUCTION?
PRE-INSTALLED WINDOWS?
ON-SITE INSTALL?
ON-SITE TRAINING?
ALL ELECTRIC FACILITY?
PROJECT DEVELOPMENT | FRONTLOADING SCHEDULE

SCHEDULE

CONTRACT PRICING?
DESIGN FREEZE DATE?
WINDOW ORDER DATE?
DELIVERY DATES?
PROJECT CLOSEOUT?
WARRANTIES?
PENALTIES FOR DELAYS?

CONTRACT PRICING?
DESIGN FREEZE DATE?
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CONTRACT PRICING?
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CONTRACT PRICING?
DESIGN FREEZE DATE?
WINDOW ORDER DATE?
DELIVERY DATES?
PROJECT CLOSEOUT?
WARRANTIES?
PENALTIES FOR DELAYS?

http://www.freepik.com/vectors/tinder
EARLY DESIGN | YOU HAVE A MATCH!

INTRODUCTION | SCHEMATICAL-DATING | DEVELOPMENT-PRENWUP | DOCUMENTATION-TRYING THE KNOT | QUESTIONS

CLIMATE *  LOCATION *  SERVICES *  SCHEDULE *
DELIVERY RADIUS *  PH WINDOWS *  CONTRACT PRICING *
INSTALL RADIUS *  HEALTHY / EPDs *
LOCAL MATERIALS / LABOR *  FSC LUMBER *
DELIVERY *  FOAM FREE OPTIONS *  DESIGN FREEZE DATE *
BARRIER FREE ENTRY *  SMART AIR BARRIERS *
INTEGRATED MODELING *  CARBON CREDITS *
IN-HOUSE ENGINEERING *  LOCALLY SOURCED *
AIRTIGHT CONSTRUCTION *  CONTRACT PRICING *
PRE-INSTALLED WINDOWS *  DESIGN FREEZE DATE *
ON-SITE INSTALL *  WINDOW ORDER DATE *
ON-SITE TRAINING *  DELIVERY DATES *
ALL ELECTRIC FACILITY *  PROJECT CLOSEOUT *

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUPT | DOCUMENTATION TYING THE KNOT | QUESTIONS
IT'S GOING TO BE A HIGH QUALITY, HIGH PERFORMING BUILDING AND WE'LL GENERATE LESS WASTE THAN WITH A SITE BUILT PROJECT
THE ARCHITECT UNDERSTANDS OUR ASSEMBLIES AND INCORPORATES THEM INTO THE DRAWING SET
PREFAB IS GOING TO BE SO MUCH CHEAPER THAN SITE BUILT
AND ALL COSTS ARE INCLUDED
- BETTER QUALITY FOR COMPARABLE COST
- LESS CHANGE ORDERS
- THE COST IS PREDICTABLE
THE BUILDER HAS THE SITE READY FOR US. THE SCOPE DIVISION IS CLEAR
## SCOPE DEFINITION | WHAT IS INCLUDED IN THE CONTRACT?

**FACTORY SCOPE**

- PRODUCTION MODEL | LOD400
- SHOP DRAWINGS
- PANEL PRODUCTION
- PANEL DELIVERY
- PRE-MEP BLOWER DOOR TEST

**TYPICALLY NOT IN FACTORY SCOPE**

- BUILDING PERMIT (LOCAL ARCHITECT)
- ENGINEER OF RECORD
- SITE PREPARATION (LOCAL BUILDER)
- CONSTRUCTION MANAGEMENT
- FINISHES
- ENERGY MODELING (CPHC)
- SYSTEM DESIGN
- FINAL BLOWER DOOR TEST
SCOPE DEFINITION | WHAT IS INCLUDED IN THE CONTRACT?

- INTRODUCTION
- SCHEMATIC-DATING
- DEVELOPMENT-PRENUP
- DOCUMENTATION-TYING THE KNOT
- QUESTIONS

- FOUNDATION
- MEMBRANE LEADERS
- LOAD PATH
- FLOOR DECK
- ROOF PANELS
- WALL PANELS
THE PROJECT IS GOING TO BE BUILT SO MUCH FASTER
SCHEDULE | ALIGNING TO FACTORY MILESTONES AND DELIVERABLES

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS
I'M SUPPOSED TO HAVE MY GEOMETRY FROZEN BUT IT'S NOT A BIG DEAL, I CAN STILL MAKE CHANGES
MY DESIGN INTENT IS CLEAR – I CAN LEAN BACK AND LET THE FACTORY TAKE IT FROM HERE
THE ARCHITECT / BUILDER TEAM IS EXPERIENCED. THE DRAWINGS SHOW ALL THE INFORMATION WE NEED FOR PRODUCTION
DRAWING CHECKLIST & EVALUATION

- ARCHITECTURALS | WINDOW SCHEDULE
- 2D CAD: PLANS, ELEVATIONS, SECTIONS
- 3D MODEL: IFC, SAT, SKETCHUP, VECTORWORKS, REVIT,..
- COLLABORATOR 2D/ 3D CONTENT
- STRUCTURAL ENGINEERING
- MEP
  (- STRUCTURAL STEEL)
  (- STAIR FABRICATOR)
GOAL | FROM CONTRACT TO CONTRACT DELIVERABLE

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS

Contracted Scopes & Geometry

Contract Deliverables
GOAL | A SUCCESSFUL RELATIONSHIP

Developing The Project & Relationship.
MORAL OF THE STORY: THIS IS A COLLABORATIVE AND ITERATIVE RELATIONSHIP BETWEEN THE DESIGN/BUILD/MANUFACTURER TEAM.
BEYOND SWIPIING RIGHT | FROM DESIGN INTENT TO PRODUCTION FIDELITY

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS

GR1
Geometry Review One = LOD 200

GR2
Geometry Review Two - LOD 350/400
BEYOND SWIPING RIGHT | DFMA - OVERALL PROCESS

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS

DFMA - DESIGN FOR MANUFACTURING ASSEMBLY

Start

Recast latest Drawing Files: Architectural
Window Schedule / Order
2d CAD Plans, Elevations, Sections
3d Model - Fc, Sat, Elevation, Views, Revit, Archid
Collaborate 2D/3D Content
Mep Program model
Structural / Ring model
Architectural Level model
Stair fabricator model

Project Setup - Data Gathering
Interpret Plans
Model thru QRT

Interior review plans and create running markups/questions list
Sort through project files for Gold
Import/organize content into Single integrated Navisworks Model
Discover/review simplest model valuations
Import content and archive other
Freeze Window and Door Units if Correct and other 3d Gold

Geometry Review 1
design gate 1

Based on Approved / Frozen Design Intent:
Production Prep:
Material Lists
Panel Drawings
Machine Files
Assembly Drawings
Builder/Trade Coordination Drawings

Geometry Review 2
design gate 2

Revise geometry per markups

Update Schedule

Review geometry per markups

YES

NO

YES

NO
BEYOND SWIPING RIGHT | DFMA – DATA GATHERING

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS

Project Setup - Data Gathering

Request latest Drawing Files:
- Architectural drawings
- Window Schedule / Order

2d CAD Plans, Elevations, Sections

3d Model: IFC, SAT, Sketchup, Vectorworks, Revit, Archicad

Collaborator 2d/3d Content:
- MEP progress model
- Structural Eng model
- Structural steel model
- Stair fabricator model

Checklist

- Sheet set pdf
- Sheet 2d cad - all level plans, critical building sections, annotated/actual floor/roof (2) section details elevations
- Sheet short set pdf
- Sheet short set 3d cad
- Can we have the structural engineer's grid lines incorporated into the arch set and review the first floor plan with grid as 3d cad?
- Updated W/C details
- Updated window and door schedule for prefabrication - all in or on complaint - Job sub for HVAC, procurement standard window install detail which could be revised to accommodate DFMA design intent
- All wall assembly details / buildups - insulation will develop in model and get set - 2x10 studs
- All floor assembly details / buildups deeper, initial resistance; serve cavity, insulation, finish ceiling, ceiling requirements; lighting, mounting and depth requirements, etc.
- All dropped roof assembly details / buildups - mechanical will develop in model and get set
- 2x6 flat service cavity on ceiling of ICF roof panels
- Location of wall - Fabrics and required building cost and spacing - a series of 60 feet required - need to show examples of standard building holdbacks
- Specific flexural requirements at windows, doors, corner and sideways transitions
- zps / Location of supply/return ducts at floor
- List and location of all wall and roof penetrations including diameter accommodation for insulation and clearance
- Draw-up locations planning and conduct in lab (for coordination - not panel scope)
- Piping drawings for HVAC and MCR framing details - all conditions, duct, pipes, insulation
- Rough openings for ducts (accommodating deflected windows)
- Egress interior & exterior lighting plan, schedule, specs and colors for non-thermal lighting to framing accommodation needs
- All lighting fixture types have strategies for framing accommodation and vision path
- Insulation method for framing/development
- Location and vertical position of hose bails relative to c.f. finish slab
- Schedules of wall or slab / Bay
- Slab insulation requirements - Group per plan
- Headers or any thermal break connections at column bases in slab or any structural detail should be on MFRadier
- Section info coming from Arch
- Void spacing for interior walls is 16" o.c.
- Subfloor thickness is 1/2" subfloor
- MFR void spacing is 16" o.c.
- Horizontal orientation for 2x12 service cavity (better)?
- Single 2x4 service cavity members around openings?
- If necessary - develop vertical spacing of first, second and following service cavity members?
- What reference should we account for in slab - vertical and well (e.g. Bolt)
- Any engineered wood substitution request from factory?
Request latest Drawing Files:
Architectural
Window Schedule / Order

2d CAD Plans, Elevations, Sections

3d Model: IFC, Sat, Sketchup, Vectorworks, Revit, Archicad

Collaborator 2d/3d Content:
MEP progress model
Structural Eng model
structural steel model
stair fabricator model

BEYOND SWIPIING RIGHT | DFMA – DATA GATHERING
Exchanging design intent can be like a very cloudy conversation.
A more direct approach – find common ground and make it the center of attention.
Competing Agendas!

On the same page!
BEYOND SWIPIING RIGHT | DFMA – PLAN INTERPRETATION

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS

BARRY PRICE ARCHITECTURE

Interpret Plans

Thoroughly review plans and create running markup/questions list
Sort through project files for Gold
Import/organize content into Single Integrated Cadwork Model
Discover / recognize most valuable import content and archive other
Freeze Window and Door Units if Correct and other 3d Gold
Interpret Plans

- Thoroughly review plans and create running markup/questions list
- Sort through project files for Gold
- Import/organize content into Single Integrated Cadwork Model
- Discover/recognize most valuable import content and archive other
- Freeze Window and Door Units if Correct and other 3d Gold
Foundations:
Footers, walls, slabs, pt sill plates, underslab insulation

Wall volumes: assemblies, outside framing, precision openings, panel splice locations, factory constraints

Floor volumes: assemblies, outside framing, precision openings, panel splice locations, factory constraints

Wood & Steel Loadpath
Roof Assemblies: pitches, bearings, overhangs, penetrations, panel splices, factory constraints
Foundations:
- Footers, walls, slabs, pt sill plates, underslab insulation

Wall volumes:
- assemblies, outside framing, precision openings, panel splice locations, factory constraints

Floor volumes:
- assemblies, outside framing, precision openings, panel splice locations, factory constraints

Wood & Steel Loadpath
- Roof Assemblies: pitches, bearings, overhangs, penetrations, panel splices, factory constraints

Model thru GR1
BEYOND SWIPLING RIGHT | DFMA – MODELING TOWARDS DESIGN GATE 2

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS

Geometry Review 1

Revise geometry per markups:

Based on Approved / Frozen Design Intent:

- Develop Refine Model thru GR2
- Panels
- Loadpath

Design gate 1

NO

YES
BEYOND SWIPLING RIGHT | DFMA – MODELING TOWARDS DESIGN GATE 2

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUF | DOCUMENTATION-TYING THE KNOT | QUESTIONS
BEYOND SWIPING RIGHT | DFMA – MODELING TOWARDS DESIGN GATE 2

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENU | DOCUMENTATION-TYING THE KNOT | QUESTIONS

Geometry Review 1
- NO
  - Revise geometry per markups
- YES
  - Based on Approved / Frozen Design Intent:
    - Develop Refine Model thru GR2
    - Panels
    - Loadpath

Waiting for Melissa to get back to me on this one.

1. Hypothetically, how much work is it to change our panel gap in the roof from 1/8" to 3/16"? With the Bending roof panels coming in real tight, and knowing that these panels are even thicker (and some much longer) we’re tossing around the idea of giving ourselves a little more room to work.

2. EMA – we need a concealed hanger for this edge of panel, or a doubled-up ledger that the rafters can bear on so that hangers are no longer needed.

3. Shouldn’t the roof sheathing get held back on the right to match what you did on the left? Also needs adjusted on the West roof.

4. Originally as a group we discussed using T11’s for roof edges however I thought after that we discussed changing the roof perimeter members to T5, so we don’t have to worry about insulating that web.

Revised beam connection between F4 and F7 require a hanger or other hardware?

2ply is supported by a studpack in exterior wall below. Melissa, can you confirm?

4. Original beam piece they’re currently landing on out alongside the double load in F7?
BEYOND SWIPIING RIGHT | DFMA – MODELING TOWARDS DESIGN GATE 2

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUPT | DOCUMENTATION-TYING THE KNOT | QUESTIONS

FINE TUNING WALL AND ROOF PANELS / TRACING CONTROL LAYERS

TUNING UP ROOF PANELS / INTEGRATING ARCHITECTS DESIGN INTENT WITH FACTORY STANDARDS
BEYOND SWIPIING RIGHT | DFMA – MODELING TOWARDS DESIGN GATE 2

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUPI | DOCUMENTATION-TYING THE KNOT | QUESTIONS

Geometry Review 1

Based on Approved / Frozen Design Intent:

- Develop Refine Model thru GR2
- Panels
- Loadpath

Revise geometry per markups.

YES

NO

design gate 1
BEYOND SWIPING RIGHT | PRODUCTION OUTPUTS

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS

Based on Approved / Frozen Design Intent:
Production Prep:
Material Lists
Panel Drawings
Machine Files
Assembly Drawings
Builder/Trade Coordination Drawings

Geometry Review 2
design grade 2

Revise geometry per markup.

Total panel weight excluding hangers: 301.0 lbs

Group: UW-6
Subgroup: Exterior Wall Slice

Structure from Opposite Side

31-07-2023
BEYOND SWIPING RIGHT | PRODUCTION OUTPUTS

INTRODUCTION | SCHEMATIC-DATING | DEVELOPMENT-PRENUP | DOCUMENTATION-TYING THE KNOT | QUESTIONS

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**BEYOND SWIPING RIGHT**

**PRODUCTION OUTPUTS**

**INTRODUCTION**

**SCHEMATIC-DATING**

**DEVELOPMENT-PRENUP**

**DOCUMENTATION-TYING THE KNOT**

**QUESTIONS**

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**Machine Files**

**Assembly Drawings**

**Builder/Trade Coordination Drawings**

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**Geometry Review**

- Design gate 2

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**Based on Approved / Frozen Design Intent:**

- Production Prep:
  - Material Lists
  - Panel Drawings
  - Machine Files

---

**Process Description:**

- Start
  - Perform Quality Control:
    - Cut
      - Reference Plane
      - Orientation
      - Start
      - Finish
    - Material
      - Orientation
      - Start
      - Finish
    - Panel
      - Orientation
      - Start
      - Finish
    - Machine
      - Orientation
      - Start
      - Finish
  - Assembly
    - Orientation
    - Start
    - Finish
  - Builder
    - Orientation
    - Start
    - Finish

---

**Quality Assurance:**

- Review geometry per markup

---

**Notes:**

- Procedure for Quality Control:
  - Yes
  - No

---

**Questions Beyond Swiping Right:**

- Production Outputs

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**Documentation-Tying the Knot:**

- Process Details

---

**Ethics and Compliance:**

- Ethical Considerations

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**References:**

- Additional Resources

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**Conclusion:**

- Summary

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**Appendix:**

- Appendices

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BEYOND SWIPING RIGHT | PRODUCTION OUTPUTS

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Based on Approved / Frozen Design Intent:

Production Prep:
- Material Lists
- Panel Drawings
- Machine Files
- Assembly Drawings
- Builder/Trade Coordination Drawings

Revise geometry per markup.

Geometry Review 2
- design gate 2

Yes

NO
BEYOND SWIPING RIGHT | MAKING MATCHES THAT LAST

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