	جامعه أسيـــــوط - كليه الهنـــــــدسة **تقييم نهاية الفصل الدراسي الثاني 2019/ 2020**			
	قسم	**الهندســـة المدنيـــــه**	**المنشـــات المؤقتـــه و تصميم الشـــدات**	**اسم المقرر**
	نوع التقييم	**بحث مرجعي**	**Temporary structures and formworks design**	
	النهايه العظمي	100درجــة	CPM4115	**Code:**
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اسم الطالب: .....

الفرقة: .....

الشعبـــة: .....

اسم المقرر: المنشـــات المؤقتـــة و تصميم الشدات

عنوان موضوع البحث المرجعي : تصميم المنشات الخشبيه المؤقته والمقارنه بين الشدات الخشبيه و المعدنيه

ا

توزيع الدرجات :

رقم السؤال	الدرجة	التوقيع
السؤال الأول		
السؤال الثاني		
السؤال الثالث		
السؤال الرابع		
السؤال الخامس		
المجموع		

استـــــاذ المقرر

الاسم.: لميـــاء كمـــال عبد الرحمن ادريس

التوقيع : لمياء كمال

توقيع لجنة الامتحان

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Question #1

1-Design wood slab form according ACI Committee 347 recommends for an elevated flat-plate floor slab of 8-in. thickness is to be formed with a top elevation 10 ft above the supporting surface below.

The general layout of the plywood sheathing, joists, stringers, and shores is shown in Figure 1. Because of the floor layout, the contractor desires to space the joists at 16 in. on-center, the stringers at 5 ft on-center under the joists, and the shores at 5 ft on center under the stringers.

The materials are B-B Plyform, Class I, plywood and No. 2 Spruce–Pine–Fir (SPF) joists, stringers, and shores. It has been determined that the strength gain of the concrete will allow the forms to be stripped in 4 days, followed by installation of re shores. The project specification requires:

that the formwork element deflections shall be no greater than $l/360$. The plywood will be assumed to be used wet, as it is frequently exposed for a lengthy period during rebar placement and in contact with the fresh concrete; however, the lumber elements will be assumed to be relatively sheltered and not exposed to significant moisture for lengthy periods.

The plywood will be oriented with its face grain parallel to the span direction—that is, the strong way. From the earlier section on vertical loads, the distributed pressure (q) for design on a working basis is:

Dead load of 8-in. concrete slab= 100 psf
Construction live load =50 psf
Formwork estimated dead load= 5 psf
Total =155 psf

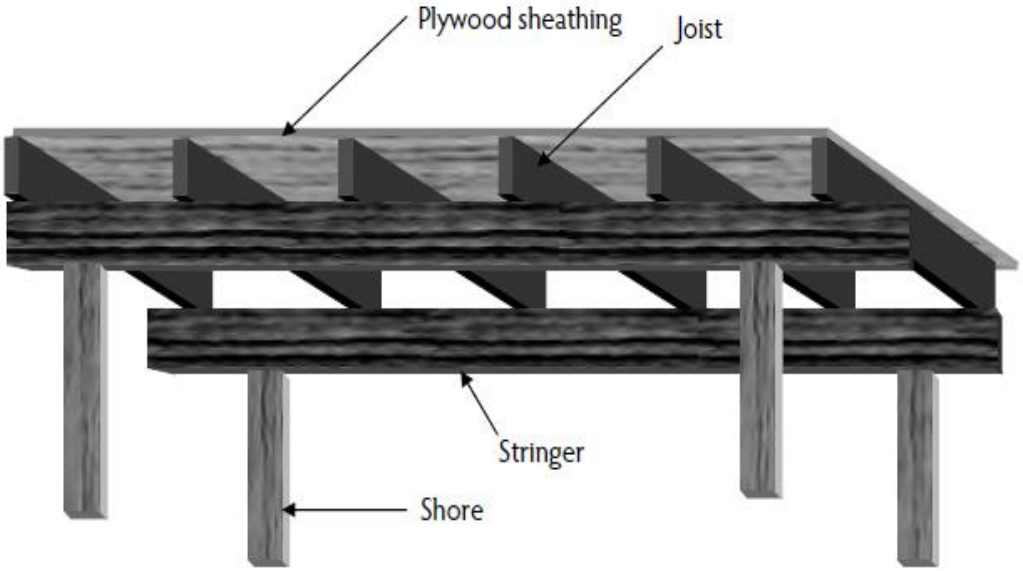


Fig 1 slab form work layout

Question #2

2- Design wood wall form for 13’-10” (13.8 ft.) high wall to be concreted at the rate of 5 ft per hour, internally vibrated. Assume the mix is made with Type I cement, with no pozzolans or admixtures, and that the temperature of concrete at placing is 80°F. The unit weight of concrete is 150 pcf with a slump of 3½″. The forms will have continuing reuse. Assume that deflection is limited to *l*/360 of the span. All lumbers are *S4S*. design contained in the ACI formwork standard

Form grade plywood sheathing ¾-in. thick is available in 4×8-ft sheets, and 4300-lb ties are on hand. Framing lumber of No. 2 Douglas Fir-Larch is to be purchased

FIND:

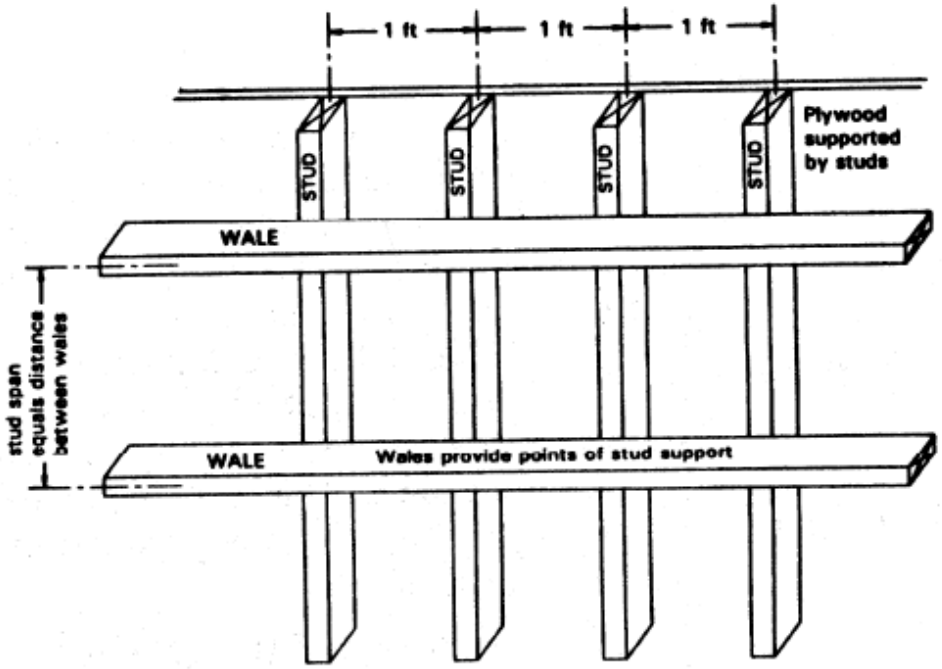
1-THE LATERAL PRESSURE

2-SHEATHING DESIGN

3-STUD SIZE and SPACING OF THEIR SUPPORTS

4-TIE DESIGN, WALE SIZE and TIE SPACING

5-BEARING CHECK



Part of wall form

Question #3

3-Design of a cold-formed steel framing floor system bearing on a steel stud wall with a window opening. Detailed calculations are included for all elements including the stud bridging and its anchorage .reared to AISI Cold-Formed Steel Framing Design Guide ,The section numbers for the design of individual components are identified in Figures required Floor Joist Selection, Rim track and Typical Stud

Given data

- Design wind load = 25 psf
- Floor design live load = 40 psf
- Floor partition allowance = 0 psf
- Wall loads from above:

PLL = 1.33 kips
PDL = 0.67 kips
(No snow, rain or roof live load in this example)

- Wall deflection limit = L/360
- Floor deflection limit = L/360 for live load and L/240 for total load
- Vibration criteria = none
- Screwed connections
- Platform construction
- Required fire rating = none
- Lateral stability for the building as a whole will be provided by reinforced concrete elevator shaft and stairwells.
- Depth of stud to meet architectural requirements = 4"

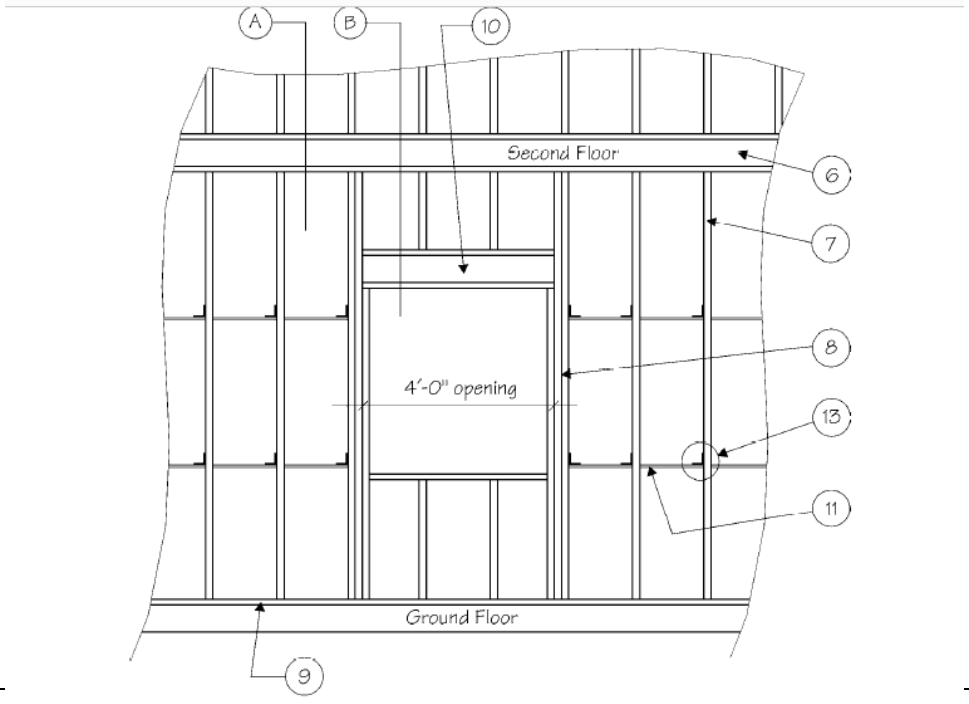


FIGURE 4-1

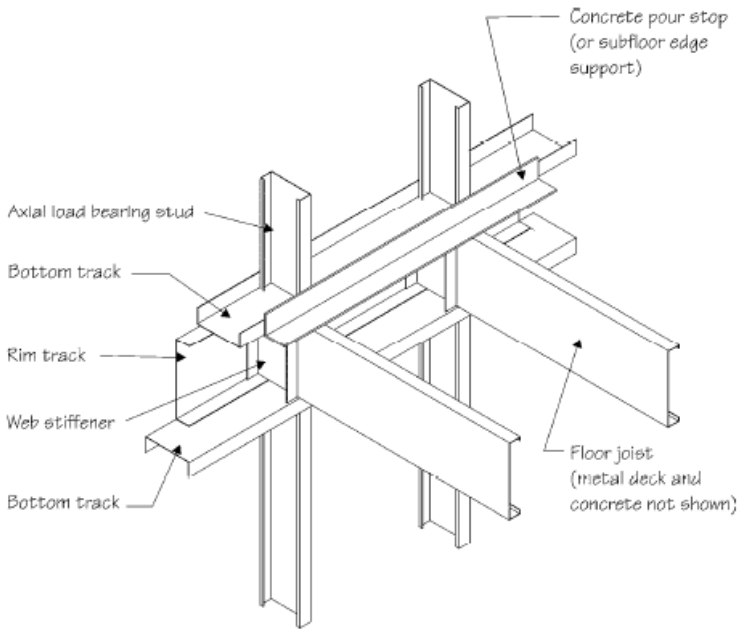
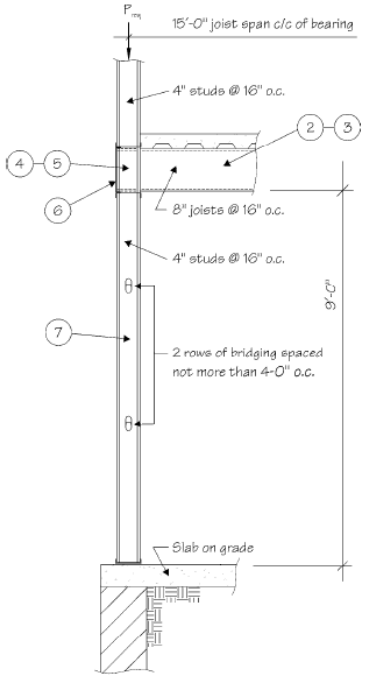


FIGURE 4-4



Sec. A-A

Question #4

For wood frame construction building shown in fig 4 according American Wood council .It is required to:

a. Determination of Lateral Loads to Shear Wall.
b. Determination of Shear Wall Sheathing and Nailing
e. Load Combinations using 2012 ASCE 7-10
h. Determine Resisting Moments and Uplift Forces
J. Shear Wall Deflection, Tie-Downs and Take-Up Devices
K Wind vs. Seismic Design with Wind Controlling
L. Use of Gypsum Board for Lateral Resistance..

For the given data

Wall Heights	= 9'	Windows
Finished Grade to Foundation Top	= 1'	Typical 3'x4'-6"
Floor Assembly Height	= 1'	Foyer 6'x4'-6"
Roof Pitch	= 7:12	Kitchen 4'x4'-6"
House Mean Roof Height	= 24.7'	Bath 4'x6'
Roof Overhangs	= 2'	Doors
Building Length (L)	= 40'	Typical 3'x7'-6"
Building Width (W)	= 32'	Foyer 6'x7'-6"
Top plate to ridge height	= 9.3'	Kitchen 9'x7'-6"

AMERICAN WOOD COUNCIL

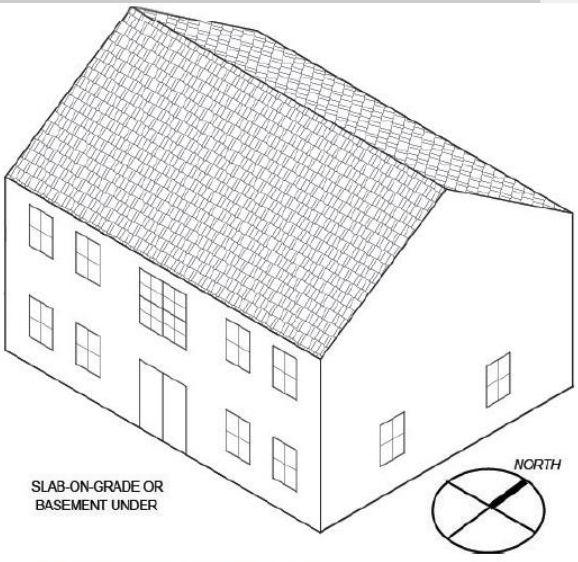
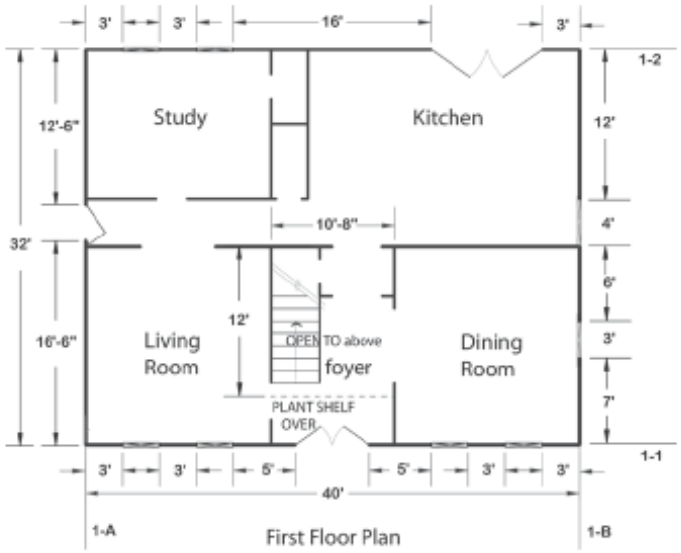
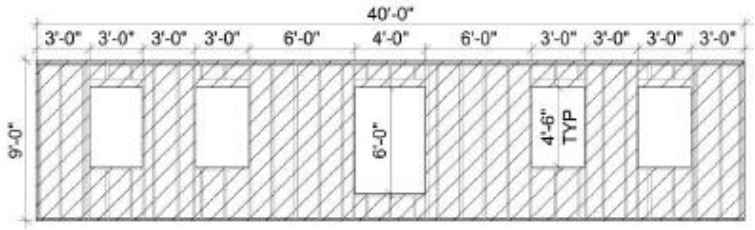


Figure 1: Isometric view (roof overhangs not shown).

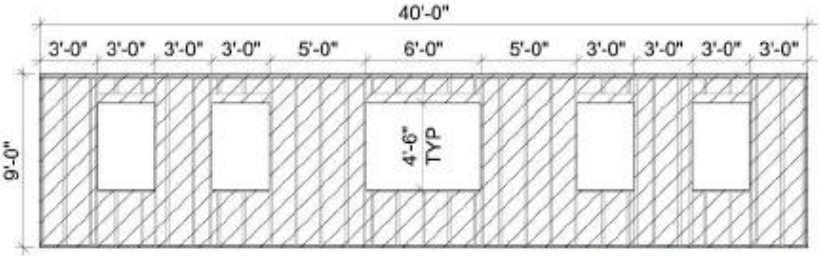
BUILDING DESCRIPTION





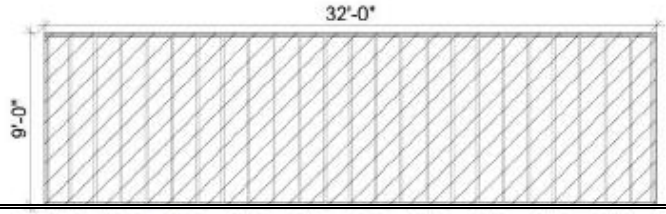
$L_{FH} = 24$ ft

2-2 (North) Elevation



$L_{FH} = 22$ ft

2-1 (South) Elevation



$L_{FH} = 32$ ft

2-B (East) Elevation

Question #5

Describe components or details for wood form work of concrete building (slabs and beams , columns, foundations),
and Comparing the cost between steel and wood formwork for flat slab typical floor in concrete building with an area 200m2 and high of floor 3.00m.

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Best wishes *Dr.Lamiaa kamal Idriss*