



**CAD / Hand Drafting Competition for High School Students
2016-2017 Design Problem and Project Description
Family Dentistry Clinic**

Program Overview: The design problem is a new free-standing building that will be home to a dental clinic for Dr. R. Canal and Dr. X. Ray. The doctors (your clients) have provided you with a Site Plan (included in this packet) and specific program requirements. However, they are counting on your creativity to provide them with a functional and eye appealing design as well as a professional set of working drawings.

Their site is located between a residential neighborhood and a commercial business district. It is important to the doctors that this new clinic incorporates architectural elements of the adjacent neighborhood. These may include incorporating similar exterior materials, roof slopes, window styles, dormers, landscaping, etc. but must also include images of the business district (i.e. the-use of metal or masonry, storefront windows, canopies, etc.). For your purpose, the styles of this neighborhood may reflect the styles of homes in your neighborhood or any architectural style you deem appropriate. You must explain the exterior style/appearance of your design in your "Design Narrative/Design Concept" which is part of the submission requirements.

This family dentistry clinic operates like most dental offices. This dental clinic provides services to families and patients of all ages. A patient arrives, check-ins, has dental procedures completed, checks-out, and then exists the building. Patients may arrive alone or may be accompanied by a parent or care-giver. Families may arrive that have multiple appointments at or about the same time as the appointments are for the various family members. Some families may have an appointment for only one child and have the need to bring their siblings to the appointment. A play area in the Waiting Room is required. Other patients may not be ambulatory and may arrive using a walker or wheelchair.

A patient is called from the Waiting Room and led to an operating/exam room. The Exam Rooms are to be located along a Corridor and separated from the Waiting Room by a door. Upon completion of the patients' examination/treatment, the patient must pass by the check-out area of the Reception Desk where the patient will make payment arrangements and possibly schedule another appointment. Provisions in the floor plan shall be given that will allow for patient confidentiality as check-in and as they go through the check-out process. Although adjacent from the Waiting Room, the check-in and check-out portion of the visit shall provide the patients confidentiality as required by Federal Law (HIPAA - Health Insurance Portability and Accountability Act).

The doctors are requesting the building be designed to be energy efficient as possible and at the same time would like to keep the building costs to a moderate level. Therefore, the doctors would like the building design to utilize passive energy efficiency techniques such as optimizing the building orientation, operable windows, vestibule airlocks, etc. At the same time the doctors wish for the building to include natural light either through the use of large windows and/or skylights.

The doctors would like the ability to arrive and depart from the building as to not have to pass through the Waiting Room. As you will note on the Site Plan, a stream exists along the back or northeast edge of the site. Dr. Canal and Dr. Ray want this natural area preserved and made visible from their offices. If possible, they would also like it visible from the Display Room.

Over the years, the doctors have inherited and collected many dental instruments and pieces of dental furniture. The Doctors wish to display the collection as a means to educate the public about dentistry and dental hygiene. The display will also function as a marketing tool. The doctors wish to include in their building a Display Room for the collection and future items that they collect. The doctors wish for the Display Room to be accessible to all their patients and have the items be secure. The Display Room therefore will want to be visible to the Reception Desk.

A small Conference Room is also requested to be accessible from the Display Room. The entire facility shall meet the guidelines of the Americans with Disabilities Act (ADA). Space shall be provided adjacent to doors to allow wheel chair maneuvering and turn around spaces shall be provided from all rooms and at least one Operating/Examination Room. Two means of entry and egress shall be provided that are barrier-free (no steps). Provide ramps as required.

The anticipated number of employees at any one time in the building is anticipated to be ten (10); (2) Doctors, (2) Dental Assistants, (2) Reception/billing staff, (4) Dental Hygienists.

Minimum Required Square Footages: The following is a list of the required spaces and their corresponding (minimum) square foot needs:

Qty.	Room and Descriptions	SF (each)	SF
1	Vestibule, air lock	100	100
1	Waiting Room, include children's play area	400	400
1	Display Room; dental collection	400	400
1	Small Conference Room	200	200
1	Restroom accessible from Waiting Room (1 toilet, 1 sink, and baby changing station)	80	80
1	Reception Desk with Check-in and Check-out counters	160	160
1	File Area, open to receptionists	120	120
1	Supply Room; office supplies	50	50
1	Employee Breakroom; countertop w/sink, microwave, table with (4) chairs, refrigerator, and employee lockers	80	80
1	Employee Unisex Toilet (1 toilet, 1 sink)	120	120
8	Operating/Examination Rooms w/ counter and sink (6)	120 (average)	720
1	X-ray Room	100	100
1	Lab Room w/ countertop and double sink	70	70
1	Sterilization Room w/ countertop and double-sink, adjacent to the Lab Room	70	70
1	Storage Room; medical supplies	50	50
2	Private Office (Doctor's)	120	240
1	Private Restroom with Shower (Doctor's) with direct access from each Private Office	105	105
1	N20/02 Storage Closet; locate on an exterior wall	12	12
1	Janitor Closet with service sink	35	35
1	Mechanical Room; Hot Water Heater/Furnace	70	70
1	Electrical Room; Incoming Service, panels, alarms	20	20
	TOTAL		3,202 SF

Site Plan: A proposed Site is included in this packet and shall be used for this project. Provide one (1) parking stall, 9' x 20', for every 300 square feet of building area. One parking space should be a handicap "Van Accessible" space, 9' wide x 20' deep w/ an 8' wide adjacent access aisle.

Construction Type: The new clinic may be of wood frame, metal frame or masonry construction.

Required Submission Elements:

Design Narrative/Concept:

1. Submittal to include a "Design Narrative/Design Concept" statement on what the student feels are the positive and appropriate elements in their design and how the design meets the project description.
2. The Narrative is to be 400 or 500 words and must be typed and submitted on 8 ½" x 11" papers.
3. Your assigned contest code number should be typed on upper right-hand corner.
4. The Design Narrative/Concept should be stapled in the upper left-hand corner of the prints.
5. Spelling and grammar will be considered.

Required Drawing Sheets:

A-1 Site Plan; scale 1"=10'-0"

1. Use the site plan in this packet, redrawing it for your project.
2. Show the building location on the site plan with the roof plan superimposed on the building.
3. Show parking, paving, walks, curbs, trash storage, vegetation, building setbacks, property lines, etc. Locate building and parking with dimensions.
4. Show the drawing compass marking NORTH.

A-2 Floor Plan; scale ¼" = 1'-0"

1. Indicate total building square footage on the drawing
2. Indicate overall building dimensions for all (4) sides of building exterior
3. Show walls, windows, doors (and doors swings) and openings
4. Show dimensions locating walls, doors, windows and openings
5. Show closets, cabinets, plumbing fixtures and appliances
6. Show all changes in floor elevation, stairs and stair landings (if any)
7. Indicate the name of each room or area
8. Show section cut marks
9. Indicate furniture placement
10. Indicate flooring materials

A-3 Electrical Plan; scale ¼"=1'-0"

1. Show switches, electrical outlets, cable/ internet cable/outlets, lighting locations, fans etc. for interior and exterior
2. Show an electrical symbol legend on your drawing

A-4 Exterior Elevations; scale 1/4" = 1'-0"

1. Two exterior elevations are required. One must depict the Front Elevation and the other must depict the Right or Left Side Elevation
2. Show walls , windows, doors roof and roof pitches as may be visible
3. Note all building materials to be used
4. Note drawings with labels indicating “ Front”, “Back”, “Left“ , and “Right “

A-5 Building Section; scale 1/4"=1'-0") and Wall Sections; scale 3/4" =1'-0"

1. Show foundation walls, footings, floor, roof, window and ceiling in outline
2. Show interior elevations in Building Section; doors, casework, etc.
3. Show room names that the Building Section is cutting through.
4. Draw a typical wall section showing exterior wall thickness/composition, construction materials and finishes

A-6 and A-7 Optional Drawing #1 and #2; shall be selected from this suggested list:

1. Exterior or Interior perspective sketch
2. Foundation Plan
3. Interior Elevations, Millwork Elevations
4. Landscape Plan
5. (2) Additional Building Elevations
6. Additional Building Sections
7. Roof Framing Plan
8. Door & Window Schedules and Details

Presentation Requirements:

1. All submittals must comply with the requirements of the competition to be eligible for judging.
2. All judges' decisions are final.
3. All submitted sheets shall be stapled at the left border with a cover sheet.
4. A sheet title block (2 1/2" x 4 1/2" preferred) shall be placed in the lower right hand corner on each sheet including the following information:
 - a) Project Title
 - b) Code #
 - c) Date
 - d) Drawing Scale
 - e) Sheet #
5. All sheets should be numbered.

Resources:

Book – Architectural Graphic Standards (Ramsey/Sleeper Architectural Graphic Standards Series)

Publication - 2010 ADA Standards for Accessible Design

Department of Justice, September 15, 2010

https://www.ada.gov/regs2010/2010ADAStandards/2010ADAStandards_prt.pdf

Publication - Dental Service design guide JUNE 2014

U.S. Department of Veterans Affairs Office of Construction & Facilities Management

<http://www.cfm.va.gov/til/dGuide/dgDental.pdf>

Website – National Institute of Building Sciences

<http://www.nibs.org/>